PRICE $1.00

Construction Methods AND EQUIPMENT

A McGRAW-HILL PUBLICATION

JUNE, 1958

In Florida, a husky crane sets 8-ft length of 72-in. concrete pipe for a storm sewer while its companion dragline excates trench ahead. Two-rig team advances an average 128 ft daily.

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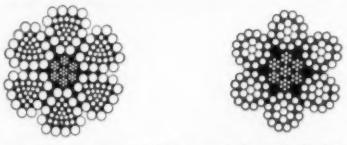
Yellow Strand Flattened Strand Wire Rope on your pipelayers, shovels, bulldozers and ditchers *does* put money in your pocket! *Here's Savings No. 1:* Yellow Strand Flattened Strand lasts *twice* – or more – as long as ordinary rope and gives you 10% greater strength. *Savings No. 2* fewer breakdowns, you make fewer rope changes. You measure the difference in dollars in your pocket! Your Broderick & Bascom Distributor will be glad to tell you more about this better wearing, longer lasting product – as well as the many other B & B products. See him soon! Broderick & Bascom Rope Co., 4203 Union Blvd., St. Louis 15, Mo.

Here's a difference you can see:



Compare Yellow Strand Flattened Strand (left) with ordinary wire rope (right) Note that Flattened Strand gives you 12 contact points, with consequent greater bearing area and smoother surface. As a result, both rope and sheaves give longer service, lower final cost.

Yellow Strand®
Wire Rope

B.F.Goodrich

B.F.Goodrich Rock Service tires speed highway construction for contractor

CKG ASSOCIATES put 115 pieces of equipment on the job to speed completion of the Northern Illinois Toll Road near Elgin. Trucks, tractors, earthmovers, cement-mixing machines —all work 12 hours a day, 6 and 7 days a week. Helping this equipment stay on schedule are 8 different types of B.F.Goodrich tires, headed by the new Rock Service Tubeless. Fast, expert on-the-job tire service given by the local B.F.Goodrich dealer is one reason for this choice.

Another is outstanding tire performance. The new B.F.Goodrich Rock Service tire is built to its inflated shape. The whole tire flexes evenly—no *localized* stresses that often cause unnecessary tire failure. The B.F.Goodrich FLEX-RITE NYLON cord body withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. Result: more retreadable Rock Service tires.

The Rock Service double chevron tread gives maximum traction. Rugged sidewalls defy rock bruises. And B.F.Goodrich Tubeless construction is available. It protects against punctures, cuts maintenance costs, is easier to service. Tires run cooler.

See B.F.Goodrich Rock Service Tubeless or conventional tires at your nearby B.F.Goodrich dealer, who is listed under Tires in the Yellow Pages of your phone book. He has a money-saving tire for every construction job.

B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

Smileage!

B.F.Goodrich *truck tires*

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HOW TO HANDLE
WET JOBS

DRIED QUICKLY TO 20 FT BELOW OHIO RIVER — NO SHEETING

Pumping station, Huntington, W. Va.
Contractor: Neighborgall Constr. Co.

TO BEAT the river's rise and to finish his job during low water level, the contractor asked Griffin for fast dewatering action.

A DRIVE-CASING sand-wicked well-point system was installed, in 3 days, through silt, sand and clay layers. 48 hours pumping dropped ground-water below subgrade.

Two days later, the bottom slab was poured—another wet job handled speedily and economically, without sheeting, by Griffin.

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Hammond, Ind. Houston, Tex. Jacksonville, Fla.
West Palm Beach, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

Construction Methods AND EQUIPMENT

JUNE, 1958

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ONE OF A SERIES of advertisements to help the construction industry get better service from wire rope.

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6 x 25F PREformed Regular Lay Whyte Strand IWRC
6 x 25F PREformed Lang Lay Whyte Strand IWRC

APRON ROPE
6 x 25F PREformed Lang Lay Whyte Strand IWRC

EJECTOR ROPE
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Macwhyte Scraper Ropes

can lower your yearly rope costs!

Scraper service needs the best wire rope — and the right rope will cut costs.

For carry-type scrapers, Monarch Whyte Strand 6 x 25F IWRC is the *correct* rope. It is specifically designed for the severest service wire rope can get. The outside wires are big and tough. They provide plenty of surface for abrasion-resistance. The independent wire rope core gives extra crush resistance, while the 199-wire PREformed make-up assures a flexibility that matches the rugged demands of constant heavy service.

The thorough Internal Lubrication of Whyte Strand Wire Rope is a further help in extending service life under severe service. Check these features. They mean longer life — and that means less rope for you to buy!

For helpful information about Wire Rope and its correct use on contractors' equipment, write for your free copy of Bulletin 5702. It's loaded with helpful cost-saving information. 100

MACWHYTE Wire Rope COMPANY

MACWHYTE WIRE ROPE COMPANY
2941 Fourteenth Avenue, Kenosha, Wisconsin

Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel, Plastic Coated and Nylon Coated Wire Rope, and Wire Rope Assemblies. Special catalogs available.

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There's a Macwhyte Distributor near for Quick Service

ON THE COVER

Two Koehring 605 machines make short work of installing more than 2 mi of storm sewer in Tampa. Included in a 1½-mi $542,000 highway job, the pipe goes in a trench up to 30 ft deep. Cone Bros. Contracting Co. removed the top 10 ft with Cat DW21 scrapers before turning their 605's loose to finish the job. This expeditious partial pre-excavation let a 12-man, 2-rig crew complete an average 128 ft of 72-in. sewer pipe per day in the trench.

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NEXT MONTH

The July issue is CM&E's annual Equipment Maintenance Guide. This year a panel of experts will discuss, "The Most Expensive Mistakes Contractors Make," and what to do about them. You'll find valuable information in this special report. In addition, there will be a complete listing of the service manuals you can order.

JUNE, 1958

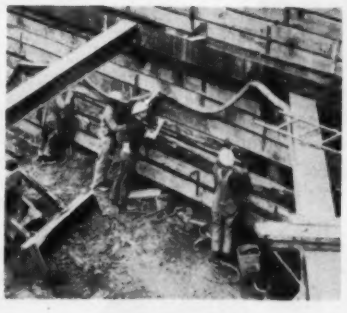
Pay Dirt in This Issue

Concrete Skyscraper Shows Off New Ideas . . 86

To erect a 31-story concrete and steel building, a steel contractor installed an unusual shoring system, and a concrete contractor devised a unique plant and handling setup.

Precision Paving Tests Contractor's Skill . . 90

Paving on the AASHO Test Road really is tough. Rigid specifications coupled with still more rigid inspection challenge the roadbuilding know-how of S. J. Groves & Sons.



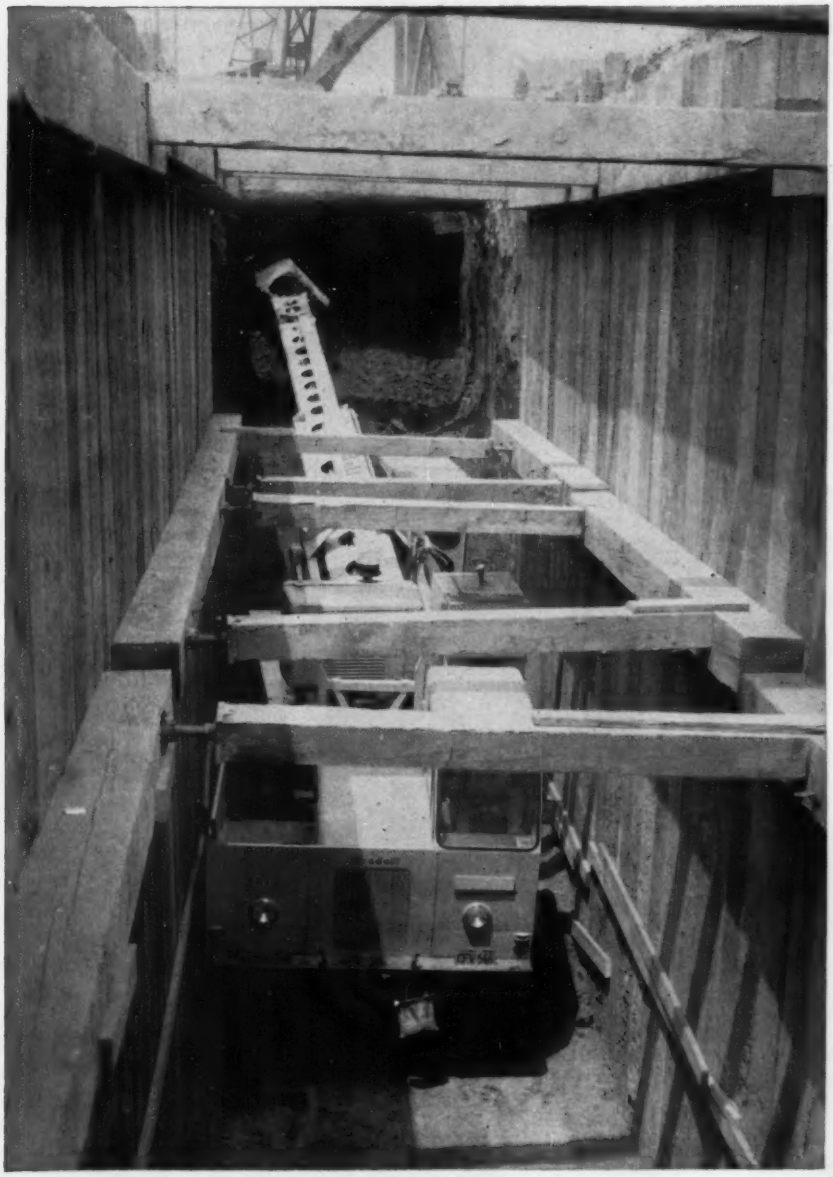
New Sheeting Method Saves Time, Money 102

Key to versatile system is a clip assembly that holds sheeting planks to exposed face of driven soldier beams. Clips and planks are easily placed and later salvaged.

Small Daily Pours Add Up 94
Explosion Places Pipeline in Lake 101
Sheeted Cofferdams Toe Into Bedrock 109
Church Expands Like a Telescope 113
Good Layout Makes Big Job Easy 115
Stump Axe Clears Land Fast 125

"IMPOSSIBLE JOB? NOT FOR OUR GRADALL!"

says A. Teichert & Son, Inc., Sacramento, Calif.



A. Teichert & Son, Inc., Sacramento, uses Gradall to speed work on the building of a reinforced concrete box storm drain for the Los Angeles Flood Control District.

Working on the bottom of this narrow 26-foot deep trench, a single Gradall speedily, safely and economically loosens muck from around existing utility lines—without any damage to these vital pathways.

Less than one-foot clearance on either side of the cut limited the Gradall's swing, but by adding wings to its 3-foot excavating bucket and using 4-foot boom extension, Gradall easily cut the full 12-foot width.

As for savings: Air-powered hand spades previously took 7 days to clean out 560 yards from around *three* utility lines —with their Gradall, 740 yards of muck were removed from around 5 utility lines in less than 4 days, cutting costs and permitting following work to keep on schedule.

Gradall's fast attachment changes, mobility and extreme working accuracy add up to greater contractor profit on every job. For convincing proof, contact the Gradall Distributor in your area and arrange for a demonstration on your own jobs.

Gradall cuts costs on all these jobs... and more!

- Hand finishing and clean-up
- Excavating and loading
- Trenching and backfilling
- Snow and ice removal
- Ditch digging and cleaning
- Grading and sloping
- Materials handling
- Loading boulders
- Placing culverts, tanks, curbs, etc.

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A Product of
WARNER & SWASEY
CLEVELAND 3, OHIO

MANUFACTURERS OF **Gradall**, **Hopto** EXCAVATORS AND **Duplex** TRUCKS

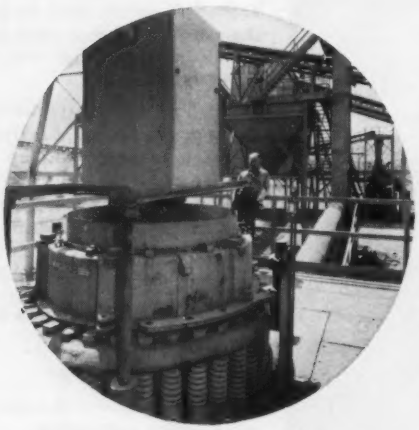
Make more profit on the jobs ahead...

with SYMONS® CONE CRUSHERS for volume production of quality aggregate

Here is a dramatic example of the vast contributions to the progress of mankind being made by the construction industry. In modern engineering and huge construction projects such as this, specification aggregate has assumed an increasingly important role. To meet the constantly growing demand for vast tonnages of quality aggregate used in concrete and bituminous highways, Symons Cone Crushers are today, more so than ever before, the first choice of leading producers throughout the world. Symons Cone Crushers are also used in sand preparation operations.

For in aggregate and sand production . . . *as in all of the great ore and industrial minerals operations the world over* . . . no record equals the performance of Symons Cone Crushers that have so consistently produced, economically and efficiently, great quantities of finely crushed product resulting in higher profit per ton per hour.

Before you submit *your* next bid, get full information about Symons Crushers.



FOR STATIONARY PLANTS

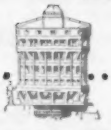
Symons Cone Crushers are the choice of leading contractors and producers for primary, secondary and finer reductions in all types of aggregate operations. Available in both Standard and Short Head types, Symons Cones are built in sizes from 22″ to 7′ in diameter, for capacities from 6 to 900 or more tons per hour.

FOR PORTABLE PLANTS

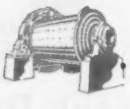
Symons Cone Crushers are being used in increasing numbers for portable and semi-portable crushing plants. Illustrated is a typical Cedarapids Intermediate Scalping Unit, using a 4-ft. Symons Cone Crusher. Unit is serving a large Midwest sand and gravel producer.

SYMONS . . . a registered Nordberg trademark known throughout the world.

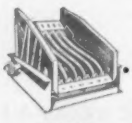
©1958, N. M. Co.



SYMONS PRIMARY GYRATORY CRUSHERS



NORDBERG GRINDING MILLS



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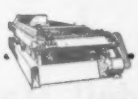
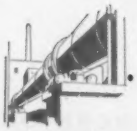
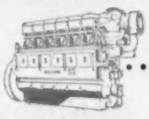


SYMONS VIBRATING SCREENS



ROTARY KILNS and COOLERS



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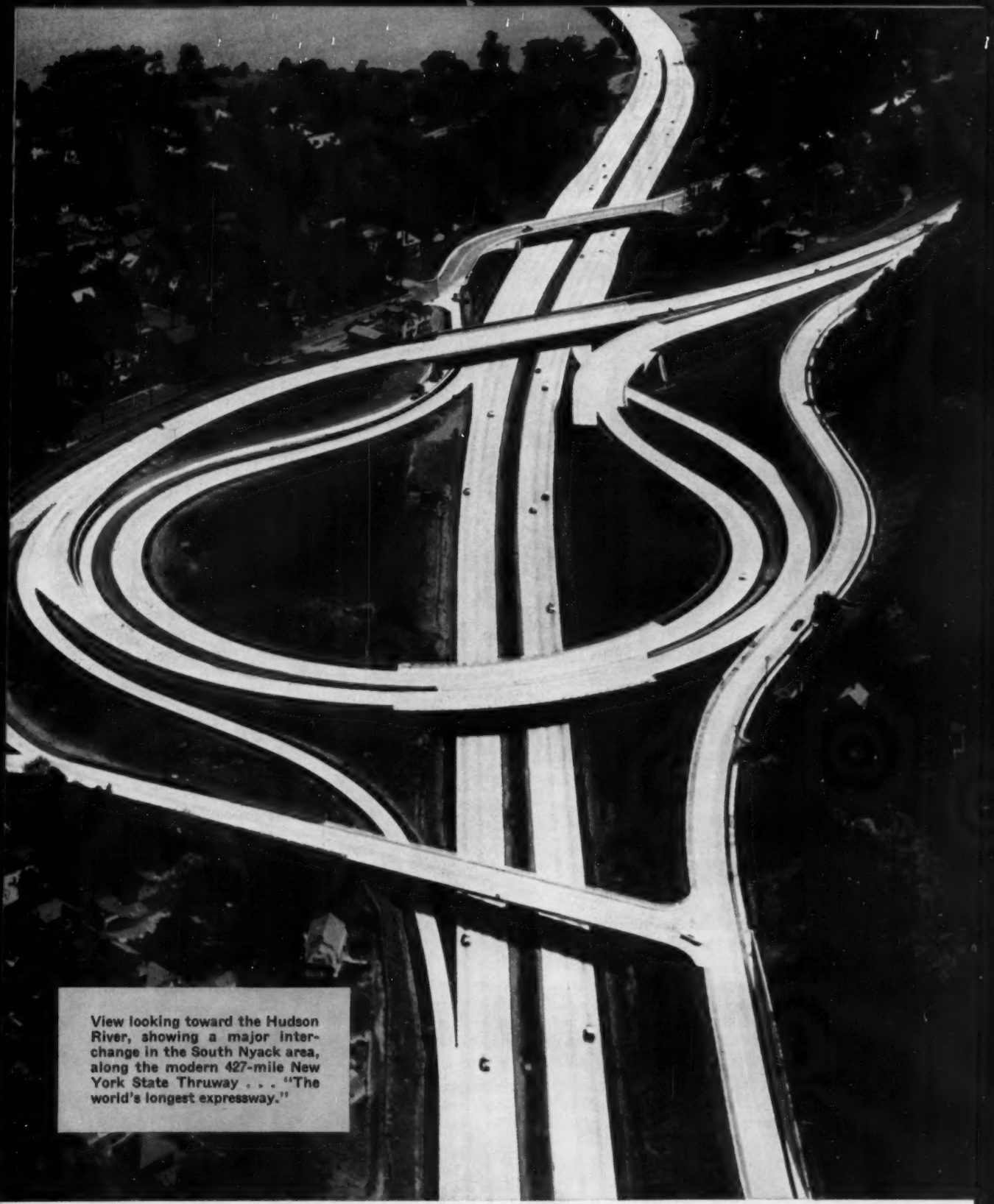

View looking toward the Hudson River, showing a major interchange in the South Nyack area, along the modern 427-mile New York State Thruway . . . "The world's longest expressway."

C558

NORDBERG MFG. CO.
Milwaukee 1, Wisconsin

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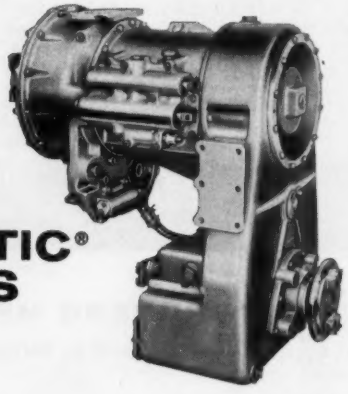
Ingenious Whiting Trackmobile uses **Allison Torqmatic Drive**

The new 5 TM Torque-Converter Trackmobile®, designed and built by the Whiting Corporation, Harvey, Illinois is termed the most important advance in rail-car handling in years. It has two sets of wheels—one for road, one for track. It can travel most anywhere. Spot cars accurately. Less waiting for work crews. Patented jacking coupler shifts freight car's weight to Trackmobile's wheels for needed traction. Allison TORQMATIC DRIVE provides smooth fluid power needed for moving many times Trackmobile's weight.

Allison TORQMATIC Converter-Transmissions are delivering the goods in hundreds of industrial applications—such as this small but mighty Trackmobile.

Time-tested and proved, the TORQMATIC DRIVE eliminates clutch manipulation. Simplifies vehicle operation. Provides full-power range shifts in either direction, plus additional multiplication of the TORQMATIC Converter. Permits operator to concentrate on load handling alone. Gets more work done at lower cost, higher profit.

Take a tip from Whiting and more than 80 other equipment manufacturers – send for the complete TORQMATIC story today. ALLISON DIVISION OF GENERAL MOTORS, Indianapolis 6, Indiana.



Allison TORQMATIC® DRIVES

CROWD— that gives DIGGING POWER PLUS!

Those words "Digging Power Plus," are not just a catch phrase. They mean what they say! A Northwest Shovel *does* give you "Digging Power Plus."

The Northwest Crowd is a Dual Crowd. It is the simplest, most powerful crowding mechanism on the market today — a combination of the simple Northwest Independent Crowd *plus* an additional force for crowding that most independent crowd shovels waste.

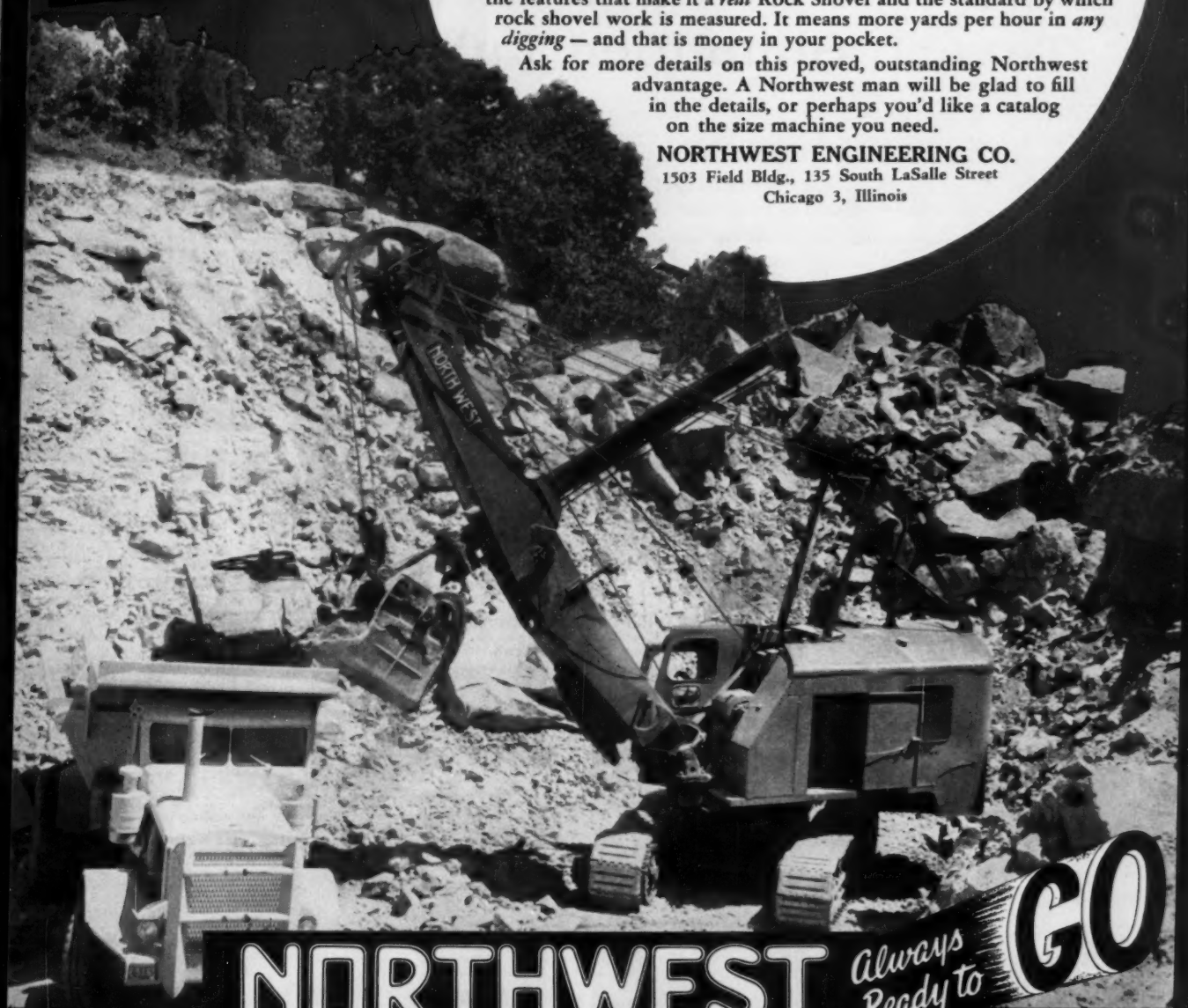
Every power shovel on the market that dead-ends the hoist cable on the boom is wasting a force equal to one-half the pull at the dipper bale.

On Northwest Shovels the tension of the Hoist Cable is added to the force of the Independent Crowd Cable, making available for digging this additional force, wasted by most independent crowd shovels. *Here is a simple, powerful crowd!*

In this additional crowding force lies a large part of Northwest ability to handle rock digging without stuttering — without delay. It is one of the features that make it a *real* Rock Shovel and the standard by which rock shovel work is measured. It means more yards per hour in *any digging* — and that is money in your pocket.

Ask for more details on this proved, outstanding Northwest advantage. A Northwest man will be glad to fill in the details, or perhaps you'd like a catalog on the size machine you need.

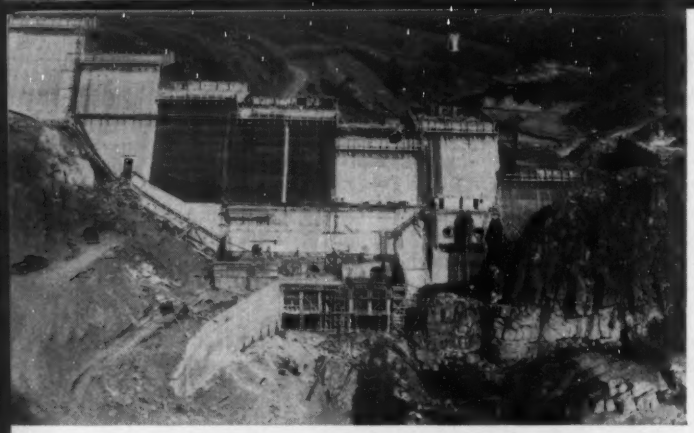
NORTHWEST ENGINEERING CO.
1503 Field Bldg., 135 South LaSalle Street
Chicago 3, Illinois



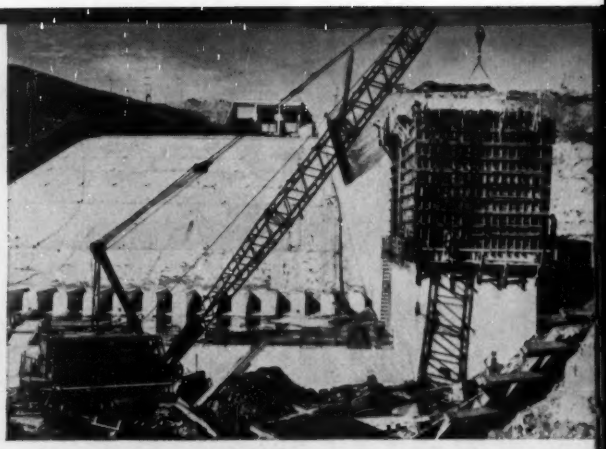
NORTHWEST Always Ready to GO

NORTHWEST EQUIPMENT IS BUILT IN THE FOLLOWING SIZES

SHOVELS	CRANES	DRAGLINES	PULLSHOVELS	TRUCK CRANES
¾ Yd. to 2½ Yd. Capacity	13-Ton to 50-Ton Capacity	⅜ Yd. to 3 Yd. Capacity	¾ Yd. to 2½ Yd. Capacity	25-Ton and 35-Ton Capacity



TEXACO PLAN was used from the start in construction of the Tiber Dam on Montana's Marius River. Dam is 205 feet high and 4,300 feet long.



TIME AND CONFUSION SAVED by Texaco Plan kept maintenance costs low during construction of Tulloch Dam in California.

These 5 great American construction projects use **Texaco Simplified Lubrication Plan**

These five projects represent hundreds of millions of dollars in construction costs. When you hit these figures, lubrication can be an especially big item. But on any size job, it's not the cost of the lubricants themselves but the difference between *planned* and haphazard lubrication methods that counts. The latter can cause unexpected breakdowns, costly overtime, and ruined equipment. But planned lubrication can speed project completion, minimize downtime, lengthen equipment life. That's why cost-conscious contractors are turning to Texaco's Simplified Lubrication Plan.

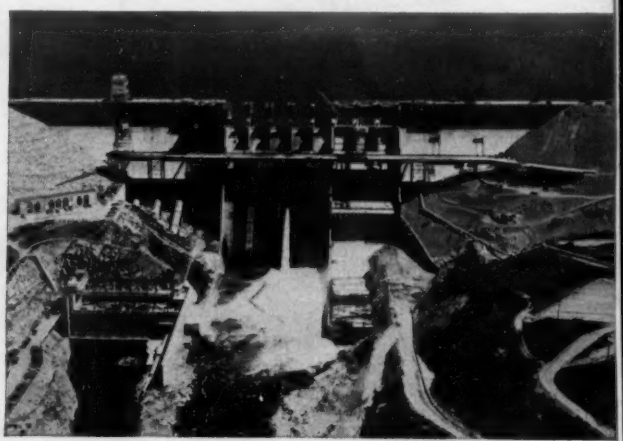
TEXACO PLAN SAVED THOUSANDS OF DOLLARS on these jobs. And it can do the same for you. It cuts the number of lubricants you need for all your major lubrication down to no more than six, and it helps you set up an efficient lubricating system for all your equipment. Furthermore, your Texaco Lubrication Engineer will gear the Texaco Plan to your particular requirements.

GET THE WHOLE STORY. Contact your nearest Texaco Lubrication Engineer *soon*. He can show you how much the Texaco Simplified Lubrication Plan has saved contractors in the past—how it can help you in the future. Just call the nearest of more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

WELL AHEAD OF SCHEDULE, Columbia River's Priest Rapids Dam is already more than one-third complete. Texaco lubricants are used exclusively.



WORLD'S LARGEST earthfill and concrete project, Folsom Dam on the American River, used the Texaco Simplified Lubrication Plan from start to finish.

HUNGRY HORSE DAM, MONTANA. TEXACO PLAN PLAYED VITAL PART IN ON-TIME PROJECT COMPLETION.

INTERNATIONAL model RDF-230-H six-wheeler. Gross vehicle weight 60,000 lbs. Gross combination weight 90,000 lbs. High-torque HR-6 Cummins 175 hp. diesel engine; other diesel options to 250 hp. Extra-heavy-duty front end. True geometric power steering. Heat treated alloy double channel frames. One of many six-wheelers and all-wheel drive models from the world's most complete truck line.

Need 'em rugged?

INTERNATIONAL Trucks are ready for anything—built to handle the big loads with ease. They're specialized on the manufacturing line to *keep* off-highway operations on the move.

Extra-heavy components shrug off brutal load punishment. Low-cost diesel power pulls through the heaviest going with profit-making fuel economy. What's more, *these* heavy-duty diesels are backed up by a power train that matches engine, truck, load weights and job exactly.

The result: You put more money in the bank because you haul extra-weight loads with less on-the-job cost and work-stopping downtime.

Your drivers will like them and you'll like them. See your INTERNATIONAL Dealer now. He's ready to help you choose the right truck for your job . . . the truck that costs *least* to own!*

**Signed statements in our files, from fleet operators throughout the U.S., back up this statement.*

INTERNATIONAL TRUCKS

Conventional trucks: INTERNATIONAL model A-182 with four-yard dump body, 141-in. w.b., 308 cu. in. engine, 16,000 lbs. two-speed rear axle, heavy-duty springs, double oversize brakes, 9.00 x 20 10-ply tires. 21,000 lbs. GVW.

INTERNATIONAL model A-164 with four-yard dump body, 129-in. w.b., 264 cu. in. engine, 15,000 lbs. two-speed rear axle, heavy-duty springs, oversize brakes, 8.25 x 20 10-ply tires. 19,000 lbs. GVW.

Cab-forward trucks: INTERNATIONAL model ACF-182 with eight-yard dump body, 149-in. w.b., 308 cu. in. engine, 28,000 lbs. tandem drive rear axle, oversize standard brakes, 9.00 x 20 10-ply tires. 33,000 lbs. GVW.

INTERNATIONAL model AC-1892 with five-yard dump body, 137-in. w.b., 308 cu. in. engine, five-speed, constant-mesh transmission, 18,500 lbs. two-speed rear axle, oversize brakes, 10.00 x 20 10-ply tires, 25,500 lbs. GVW.

Need 'em now?

Four Heavy-Duty models are ready now for immediate delivery! Call your INTERNATIONAL Dealer—for delivery from the INTERNATIONAL *Truck Factory Inventory Pool.*

Choose from conventional or cab-forward models complete with bodies, hoists, frame reinforcements, tow hooks, front directional signals, rear view mirrors both sides, heater-defrosters and oil filter.

To meet your specific requirements you can have any or all the following optional equipment installed in a matter of hours: cab protectors, extension sides, swinging partitions and spreader aprons.

Keep your job moving on schedule with INTERNATIONAL Trucks—first in six-wheel and heavy-duty truck sales for over 23 years.

cost least to own!

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Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

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Contractors and public officials everywhere are finding that they can *DOUBLE the efficiency of their men and machines*... handle more jobs per year at lower net cost... by having an economical LaCrosse Tilt-Trailer on hand to move equipment when and where it is needed. LaCrosse "Tilts" are quality-built with *extra-rugged* frames and decks to withstand years of day-in-and-day-out abuse. All models come *fully equipped with hydraulic "cushioning" cylinders and extra-large brakes,* for extra safety in hauling big equipment. Best of all, there's a size and type of LaCrosse Tilt-Trailer for every hauling need... *backed by the same one-year factory warranty* you get on larger LaCrosse low-beds, up to 100-ton capacity. See your LaCrosse Distributor for full details.

4 types... 6 to 22-ton capacity

Type LTA4

6 or 8-ton capacity. 6½' x 14' platform with oscillating tandem axle and hinged drawbar.

Type TSA2

8 or 10-ton capacity. 8' x 17' platform with single H-beam axle and adjustable drawbar.

Type DTTA

13, 16 and 20-ton capacity. 8' x 18'5" platform with tandem axle and adjustable drawbar.

Type GTTA

14, 18 and 22-ton capacity. 8' x 21'2¾" platform with "walking-beam" tandem axle, patented one-piece gooseneck.

LaCrosse Trailer Corp.
Dept. F114, LaCrosse, Wis.

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Name_____ Title_____

Company_____

Address_____

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Construction News From Washington

Washington, D.C.
June, 1958

Congress Votes for Construction

Extra billions of construction money will flow in the next few years to contractors, workmen, and suppliers of equipment and materials as a result of anti-recession legislation that Congress is grinding out in this session. Most of the big rise in construction volume will come in private building and in state and local public works that will get federal funds either as grants or loans.

More Roadbuilding Money

Construction awards for federal-aid primary and secondary highway projects will be more than $500 million higher by Dec. 1 than they would have been if Congress had not added special anti-recession money in the 1958 highway bill. That's in addition to the big boost the law gives to construction on the Interstate Highway System.

Congress gave the states $400 million extra of federal-aid money for non-interstate construction to be placed under contract by Dec. 1 and completed by Dec. 1, 1959. The legislators also sweetened the traditional 50-50 matching ratio for projects on the primary and secondary systems by making two dollars of federal money available for each dollar of state money. And they set it up so the states could borrow some of their matching dollars for these jobs from the U.S. Treasury and pay off the loans at a later date with dollars deducted from future federal-aid apportionments.

Contractors Will Collect Faster

Contractors won another benefit in the new highway act. BPR now is specifically empowered to reimburse the states promptly for the federal share of state payments to contractors for materials delivered to the job. This legal sanction of U.S. payment for materials delivered to the site makes it easier for states to pay contractors. The provision should remove states' hesitation on materials payments.

States Will Spend It All

You can bet that every last one of the $400 million two-to-one federal dollars will be under contract on federal-aid primary and secondary jobs by Dec. 1. To make sure that none of the extra federal-aid money has to be returned to the federal government as a result of savings on projects that under-run the estimates, each state is lumping all its special jobs in one state-wide emergency project that is more than big enough to soak up all the two-for-one dollars.

And the Bureau of Public Roads is seeing to it that no state builds up its kitty of two-for-one emergency projects by slowing down its

lettings of regular 50-50 jobs on its primary and secondary mileage. BPR instructed its division engineer in each state to withhold approval of two-for-one projects if the state highway department falls behind schedule in awards of the regular 50-50 contracts.

Housing Gets a Quick Lift

Building of new homes—and of all the essential utilities to serve them—is right up with highways. Homebuilders already have benefited from anti-recession legislation.

Congress gave the Federal National Mortgage Association $1 billion to assure speedy construction of new homes under long-established government mortgage programs. Commitments for these homebuilding loans have been issued at an ever increasing rate since the emergency housing act was signed into law on April 1.

By the sixth week of the new special assistance program, FNMA was committing money to start construction of new homes at a rate of 3,500 houses a week. Indications are that the weekly rate will continue to rise and that the $1 billion will finance construction starts on 80,000 new houses before Thanksgiving.

Still in the Hopper

Congress is moving ahead on two other pieces of legislation that will boost local public works construction. Leaders in the House and Senate have cleared the track for passage of a bill to make $1 billion of federal funds available in 50-year, low-interest loans to state and local agencies for construction of all types of facilities—schools and other public buildings, streets, sidewalks, sewer and water projects, parks, playgrounds, etc.

Following this community facilities bill on the Congressional list is another to extend the federal-aid airport program four years and increase the federal share of 50-50 matching funds from the present $63 million a year to something like $100 million a year.

Federal Work Picks Up

Direct appropriations for federal construction also are being stepped up. But the after-effects of budget cuts in the first half of 1957 and spending hold-downs last fall and winter slowed the all-federal programs so much that they could not recover the lost ground before the end of the current fiscal year on June 30.

Contract awards for military construction will fall short of their target for the year by $400 million or more. This slack will be picked up in the 12 months starting July 1, and actual construction spending also will rise about $400 million.

Total military construction expenditures for the current year probably won't top $1.7 billion, considerably short of the $2 billion originally budgeted. In the year beginning July 1, however, defense officials expect spending to go over $2.1 billion.

Spending on flood control and rivers and harbors projects of the Corps of Engineers also will show a sharp rise in the 1959 fiscal year, increasing to about $775 million from $685 million this year.

NEW

Whiteman

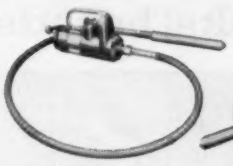
ONE-MAN LIGHTWEIGHT PORTABLE ELECTRIC VIBRATOR

MODEL SEW.
Weighs only 16½ lbs. (plus

Here is new convenience, new lightweight portability, new efficient performance, new rugged construction in a small one-man electric concrete vibrator. The new Whiteman Model SEW is so light it can be "worn" with handy harness, eliminating the need for long flexible shafts and moving heavy engines around the job. Despite its size, Model SEW produces 10,000 v.p.m. — does a thorough vibrating job. Small 1 5/16" head is perfect for narrow forms, between reinforcing bars and other tight places. Plugs in anywhere. Has a minimum of moving parts for easy maintenance and a long life of dependable service. Call your Whiteman distributor or send coupon for full information.

NOW 5 MODELS FOR EVERY JOB REQUIREMENT!

MODEL GW. Heavy-duty machine for big jobs. 6 hp gas engine. 10,000 vpm.



MODEL EW. Powerful electric model for medium and large jobs. 10,000 vpm.

MODEL SW. Small, compact. Gas engine. 4,000 vpm. For small to medium jobs.

Also NEW!

Model SLW is a new, lightweight portable machine for numerous job applications. 3500 rpm gas engine. 10,000 vpm. Between this new machine and new Model SEW, lightweight equipment is now available for every need.

Grinding, sanding and polishing accessories are available for most Whiteman Vibrators

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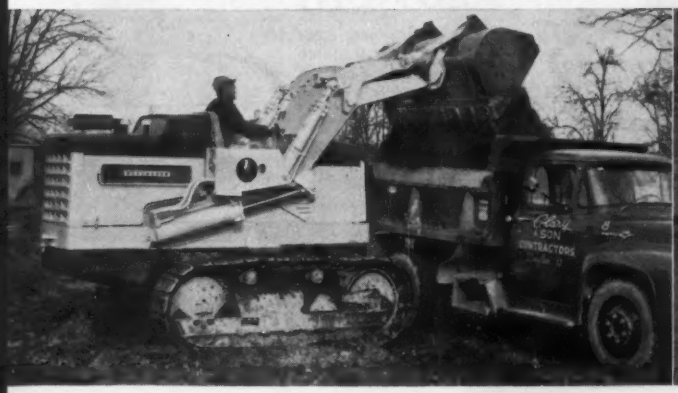
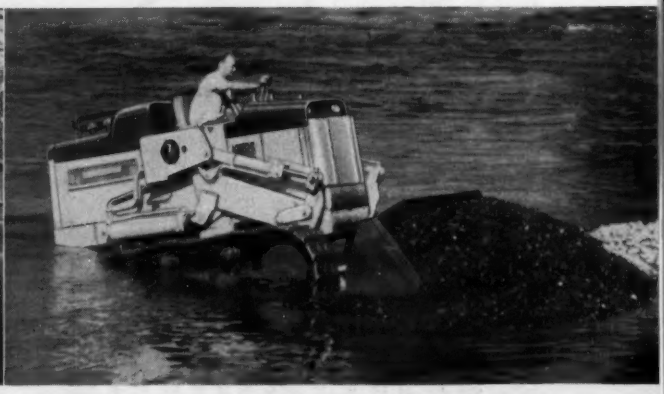
model 12 PAYLOADER®

Outperforms anything on tracks because there's . . . .





BUD CLARY, Partner of Clary & Son, Contractors in Dayton, Ohio, says, "The Model 12's maneuverability, balance, speed and ease of operation enables the operator to load out more yardage per hour than regular loaders of larger capacity. My operators tell me there is nothing to compare with the operating ease of this 'PAYLOADER'."

FERN WEISS, Contractor of Springfield, Oregon, says, "Loading this river bank gravel, which is extremely heavy per yard, I find the 'PAYLOADER' extremely stable; there is not the slightest tendency to tilt, even with the bucket heaped full. Easiest as well as fastest loader I have ever operated."

"Best money-maker I ever owned!"

"I can bid lower and still make as good a profit" says John Beniger, busy Sheboygan, Wis. contractor

"After many years of experience digging basements and grading, I thought I knew what a tractor-shovel could and could *not* do. But a year ago I bought a model 12 'PAYLOADER'. Soon I found out I had a new kind of tractor-shovel under me — that was easier to handle, that was faster, that had more digging power, a new kind of balance and that seated me where I got a smoother ride and could really watch the bucket action. I've got 1,000 hours on it now and I can't say enough good things about it."

More production

"It's production that puts money in the bank and it's more speed, digging power and balance built into the 12 that really moves dirt. I can dig an average basement with it in 3 hours less time — can load a 10 yd. truck from a stockpile in 1 minute. These are just two examples of what the model 12 can do — and all without strain on the driver."

Power-shift and power-steer

"Operating the Model 12 is a cinch. Steering requires only a light touch on the steering levers and there are no back-breaking foot brakes to pump in the process. Any speed change up or down is made instantly, on-the-go with only finger-tip effort. Forward-reverse shifting is just as easy. It's a real operator's dream. "Only a man who has put in a day on a regular tractor-shovel can appreciate what this model 12 power-shift and power-steer means to the driver. Digging basements requires about 700 shifts and turns a day, and when you've pushed and pulled with both arms and pushed with both feet that many times a day on a conventional machine, you've really had it."

Works where and when others can't

"See that photo where I'm backing up out of a basement with a full 2-yard load? Don't try it with a front-engine tractor-shovel — even with a smaller load. I do it all the time and it saves turns *and* time in basement work. That's one big advantage in not having most of the machine weight on the front idlers. Another advantage is that I can work on soft, spongy ground when others bog down at the front. Then, of course, there is the added traction I get from more even weight distribution along the tracks . . . also less strain on the front idlers."

Low Maintenance

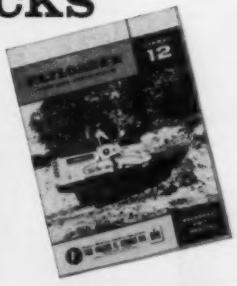
"The 12 is the most ruggedly built tractor-shovel I ever owned or ever saw. In almost 1,000 hours of heavy work maintenance and downtime have been practically zero, and that's important to me and also to my customers. They don't like to have a job delayed by machine failure any more than I do. There are many more good things about the model 12 that I could tell you, but they all add up to the fact that, as far as I'm concerned, it makes all other tractor-shovels obsolete."

. NOTHING LIKE IT ON TRACKS

The Model 12 is a complete, unit design 1¾ yd. tractor-shovel, instead of a tractor attachment. Its rear-mounted engine counterbalances the bucket load at all times . . . the full length of the tracks grip the ground, enabling you to dig more, carry more and deliver more.

You get operating speeds engineered for shovel work, a transmission designed for shovel work, plus ease of operation and maneuverability no other machine can provide. This Model 12 outperforms anything in its size . . . even machines with 50% larger bucket capacity.

You can't compete if your equipment is obsolete . . . so get full information on the remarkable Model 12 from your near-by "PAYLOADER" Distributor.



Get the COMPLETE story

on the radical new design MODEL 12 "PAYLOADER", the complete tractor-shovel, with improved traction, stability and balance "built-in" for the best performance in digging, carrying and dumping.

THE FRANK G. HOUGH CO.
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Send literature and other data on the 1¾ yd. model 12 "PAYLOADER".

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SAY "HUFF"

Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

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SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

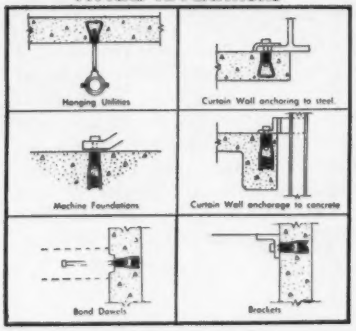
New Richmond Structural Concrete Inserts

With sufficient strength and safety for permanent fastening to concrete.

Available in ⅛" to 1½" diam. in strengths to 65,000 lbs. in 3,000 psi concrete

The *new* Richmond Structural Concrete Inserts are prefabricated from a special design which distributes the bolt stresses into the concrete for greater strength than any previously known device. Certified tests of these units in concrete at 3,000 p.s.i., verify this claim and permit design engineers to approach the problem of fastening appurtenances to structural concrete with greater security than has been possible in the past.

TYPICAL APPLICATIONS



The new Richmond Bulletin on Structural Concrete Inserts gives you complete information about these inserts and their varied uses. Send for it and the Richmond Handbook showing the full line of Tying Devices, Anchorages and Accessories for concrete construction. Write to:

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RICHMOND SCREW ANCHOR CO., INC.
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or 315 South Fourth St., St. Joseph, Mo.

Job Talk...

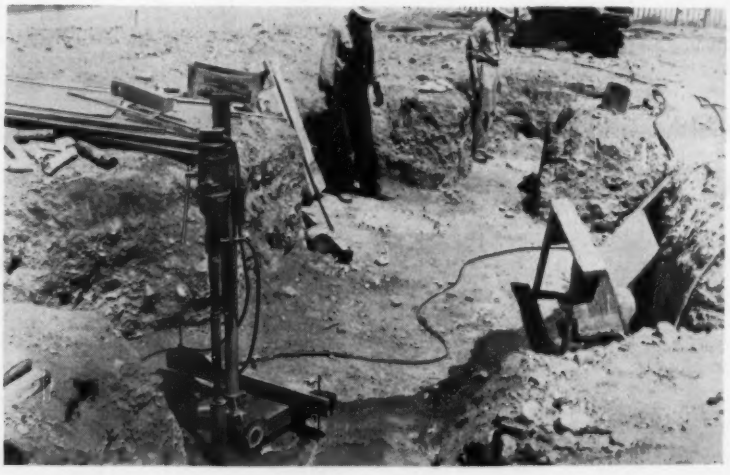
Modified Grader Scarifies Slopes

Scarifier teeth mounted across the back of a motor grader moldboard make loosening side slopes on a highway job fast and easy.

Joint venture contractors Robert E. Lee & Co. and Manning & Fox Construction Co. of Lexington, S.C., welded a 2x4-in. steel bar across the back of the moldboard just below the mounting brackets and cut slots in the bar on 12-in. centers for mounting the scarifier teeth. With the teeth removed, the moldboard is free to perform its usual tasks.

The modified Caterpillar No. 12 grader makes a 12-ft scarifying pass to loosen clay side slopes for bonding with top soil. The clay must be scarified 4 in. deep so that the top soil will stick to the steep slopes.

The joint venture holds a $2-million contract to construct 13 miles of four-lane, divided highway in South Carolina.



Drill Carves Pile Holes in Concrete

A portable core drilling machine helped contractor John L. Meek erect a 200-ton monument at Fort Moore Pioneer Memorial in Los Angeles.

Three 24-in.-dia friction piles support the monument, but the big shaft is so close to a 51-ft retaining wall that the piles must pierce the wall's 30-in.-thick concrete footing. And specs ruled out impact cutting through the

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Only the super-strong General L.C.M. delivers the extra-performance you need to keep jobs rolling on schedule. Built with General's own Nygen cord, the L.C.M. defies the worst job hazards . . . guarantees deep-down traction and crawler-like flotation with its huskier, wider, heavier tread. Get the extra tire performance that means extra profits on every job. Equip your units *now* with the new wide-base General L.C.M.

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- built with exclusive NYGEN cord for matchless strength
- designed to provide crawler-like flotation and traction
- minimum rolling resistance in all kinds of going
- precision engineered to reduce operating costs

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footing; engineers feared damage to the concrete.

Superintendent Bill Gardner tackled the job with a Truco portable diamond drilling machine. He set the rig on the exposed top surface of the footing, drilled a series of overlapping 3-in.-dia core holes around the circumference of each 30-in.-dia pile hole, and then pulled out the plug to make way for the pile.

The machine was anchored to bolts set in the existing footing so that it could be pivoted in a circle. Drilling 29 overlapping holes provided a 27-in. core that weighed more than 1 ton.

Drilling time was comparatively fast—about 50 min per 3-in. hole. Setting up—pivoting the rig and readjusting the clamp—took another 10 min. The contractor used up nine diamond drill bits on the job.

Templet Holds Piling

Contractor Rocco Ferrera of Detroit, Mich., designed a templet to save time and trouble in driving steel piling for a deep sewer trench.

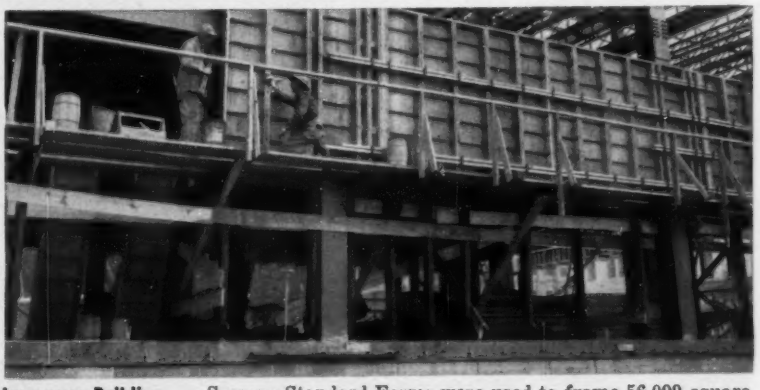
The templet is made of structural steel beams, and it is 25 ft long. It positions the piling, holds it vertical, and guides it into place.

Ferrera holds a $1-million contract for a section of a big sewage interception line for Louisville, Ky. Average depth of the cut is 37 ft. The 8-ft ID concrete pipe is reinforced with some of the heaviest gage welded-wire fabric ever used.

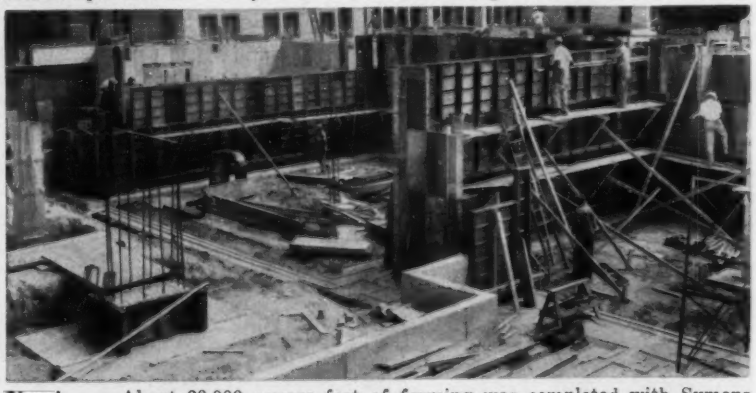
continued on page 28

GENERAL BUILDING with Symons Forms

School Addition . . . 12,000 square feet of Symons High Strength Forms were used for a total of 225,000 square feet of wall forming.



Insurance Building . . . Symons Standard Forms were used to frame 56,000 square feet of Spandrel Beams. Symons Shores used throughout in beam construction.



Church . . . About 30,000 square feet of forming was completed with Symons Forms. Wall thicknesses varied from 12″ to 20″ and in heights from 4 to 14 feet.

Symons can help you with your forming problems. Our engineers prepare complete form layouts and bill of materials at no obligation. Other Symons products used in general building are column clamps and shores. Forms, shores and column clamps may be rented with purchase option—rentals to apply on purchase price. Information on Symons products and services sent FREE on request.

Symons CLAMP AND MFG. CO.

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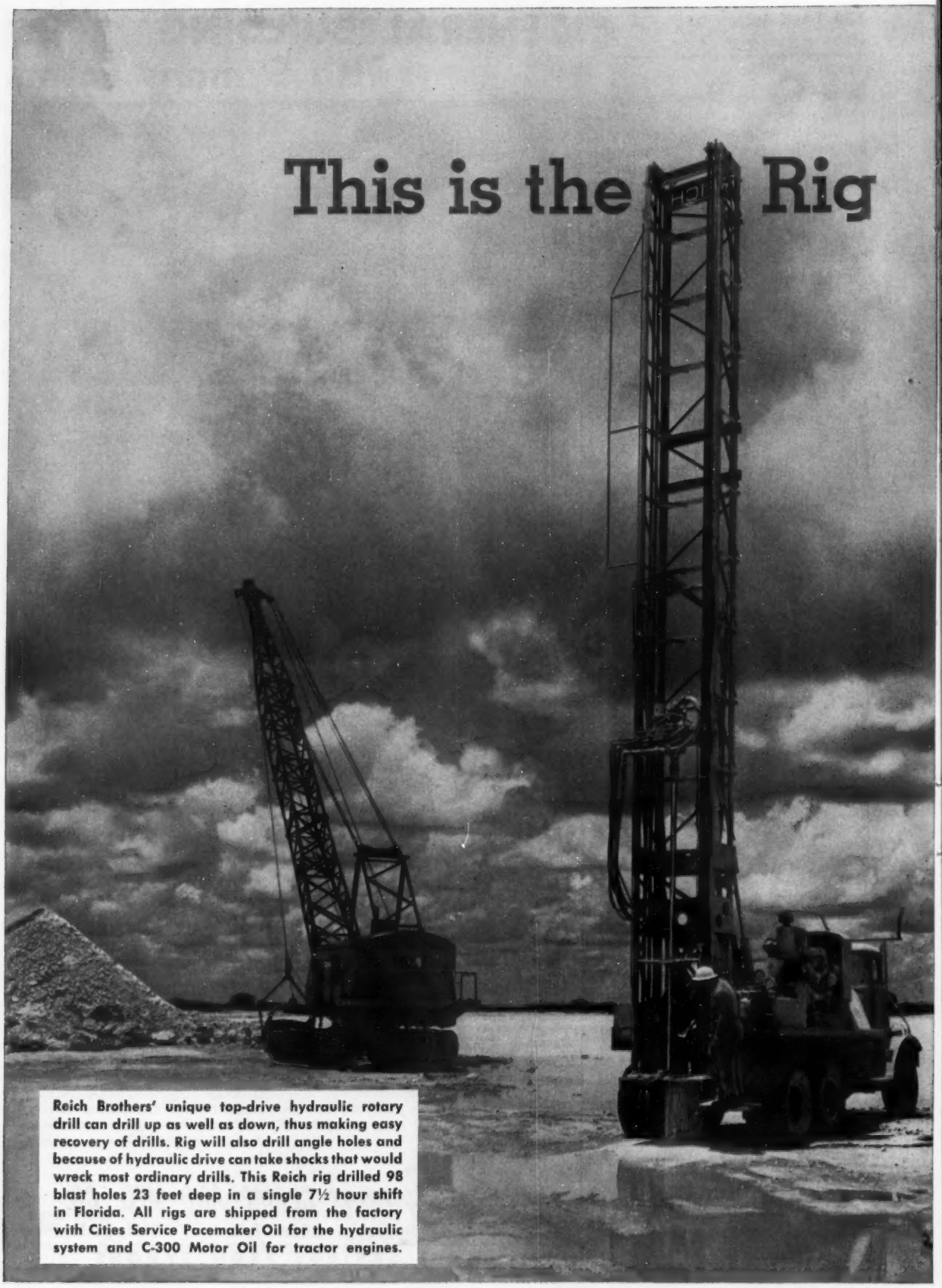
MORE SAVINGS FROM SYMONS

This is the Rig



Reich Brothers' unique top-drive hydraulic rotary drill can drill up as well as down, thus making easy recovery of drills. Rig will also drill angle holes and because of hydraulic drive can take shocks that would wreck most ordinary drills. This Reich rig drilled 98 blast holes 23 feet deep in a single 7½ hour shift in Florida. All rigs are shipped from the factory with Cities Service Pacemaker Oil for the hydraulic system and C-300 Motor Oil for tractor engines.

that Reich Built

...and Cities Service lubricates it!

Shortly after World War II, Reich Brothers Manufacturing Company of Terre Haute, Indiana, designed and built the first top-drive hydraulic rotary drilling machine.

With a 90 foot stroke and the ability to withstand severe shock, Reich's rig gained immediate popularity and is now in service from Michigan to Malta for mines, quarries, road construction and prospecting.

Reich realized early that extreme pressure and diverse weather conditions would place a tremendous burden on the machine's hydraulic oil and if the oil failed, so also would the rig.

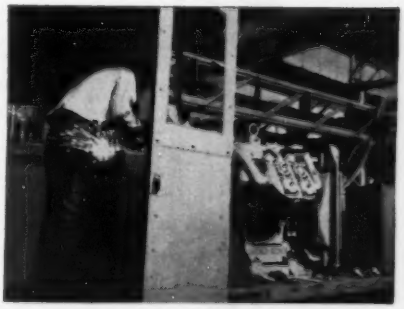
Cities Service Pacemaker Oil was Reich's choice, and the wisdom of their judgment is best illustrated by the fact that there's never been a lubrication failure. One rig actually drilled 98 blast holes in a single 7½ hour shift!

Again, for the engines of the trucks and tractors on which the drills are mounted, Reich found that Cities Service has the most suitable lubricant. All units leave the factory with Cities Service C-300 Motor Oil in the crankcase . . . ready for the most rugged duty.

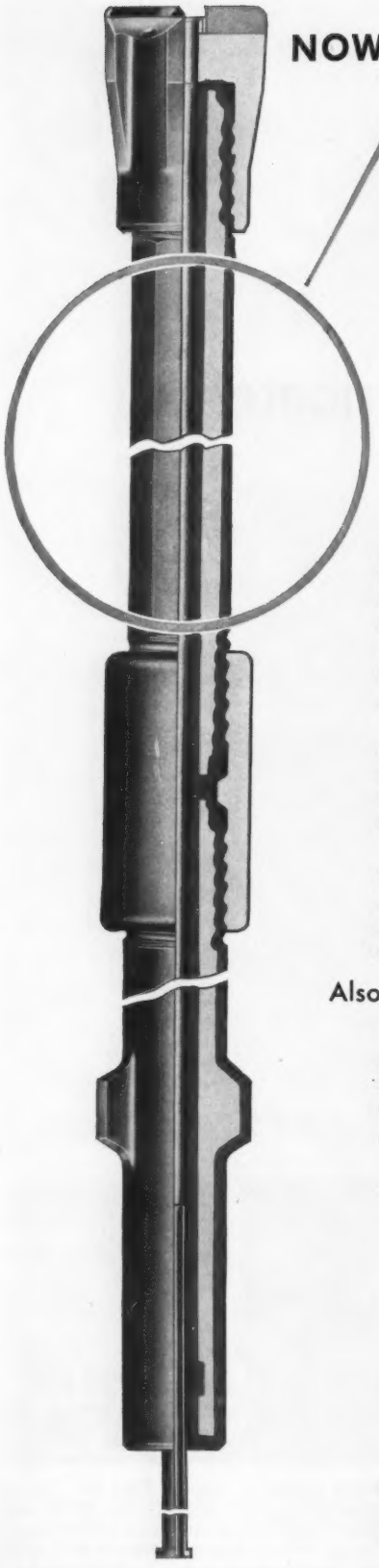
If you're looking for oils and greases that can take it—if, like Reich, your reputation depends upon flawless performance—you'll find the answer in Cities Service lubricants. Talk with a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS



Reich Builds Its Rigs to Take It! ...uses Cities Service Pacemaker Hydraulic Oil and other Cities Service lubricants for the same reason. "Under extreme weather and load conditions, they give consistently outstanding performance," says Reich.



NOW CARBURIZED DRILL STEEL life that is

MEASURED IN MILES*

on the job performance proves lower cost per foot of hole when you use the ALL I-R Deep Hole Drilling Combination

* More than *6 miles* of hole with a single steel! That's the record chalked up by an I-R Carburized Alloy Steel Rod on a Montana construction project. This "super" steel broke after 32,307 feet. Another piece broke at 24,400 ft. and another at 15,000 ft. Performance like this on hard rock, deep hole drilling jobs is the result of Ingersoll-Rands improved Carburizing process. Every steel is specially treated to provide exactly the *right combination hardness* and *core toughness* to withstand billions of heavy impacts without molecular fatigue.

And what about *bit* performance? On the same job, in hard basalt, customer keeping accurate records reported an I-R Carset bit that drilled 4,065 feet on *one* regrind. On second regrind insert still looked good with considerable footage left in the bit. Bits used were I-R non-rifling type 60X face design available in 2½", 2¾", 3" and 3½" sizes.

This is further evidence that it *pays* to use the ALL I-R Deep Hole Drilling Combination.

Carburized Shank Piece gives extra strength and wear resistance where it is needed most.

Semi-Bridge Couplings assure proper alignment between sections—permit deep hole drilling without pulling steels.

Also CARSET BITS
with Type 40 or Quick-Change I-R Type 22 Threads

Inserts, shoulder, clearance, and skirt all correctly designed for highest sustained drilling speed and maximum bit life. Available with either the Type 40 Thread or with the Quick-Change Type 22 Thread, especially designed for faster and easier detachability.

Thread	Description	Bit Sizes	Net Weight Lb.	Net Weight Oz.
Type 40	1¼" O.D. Thread, 3½ threads per inch	2"	1	2
		2⅛"	1	5
		2¼"	1	8
Type 22	1¼" O.D. Thread, 3 threads per inch	2"	1	2
		2⅛"	1	5
		2¼"	1	8

For complete information, or for an eye-opening trial order, call your Ingersoll-Rand man as soon as you can.

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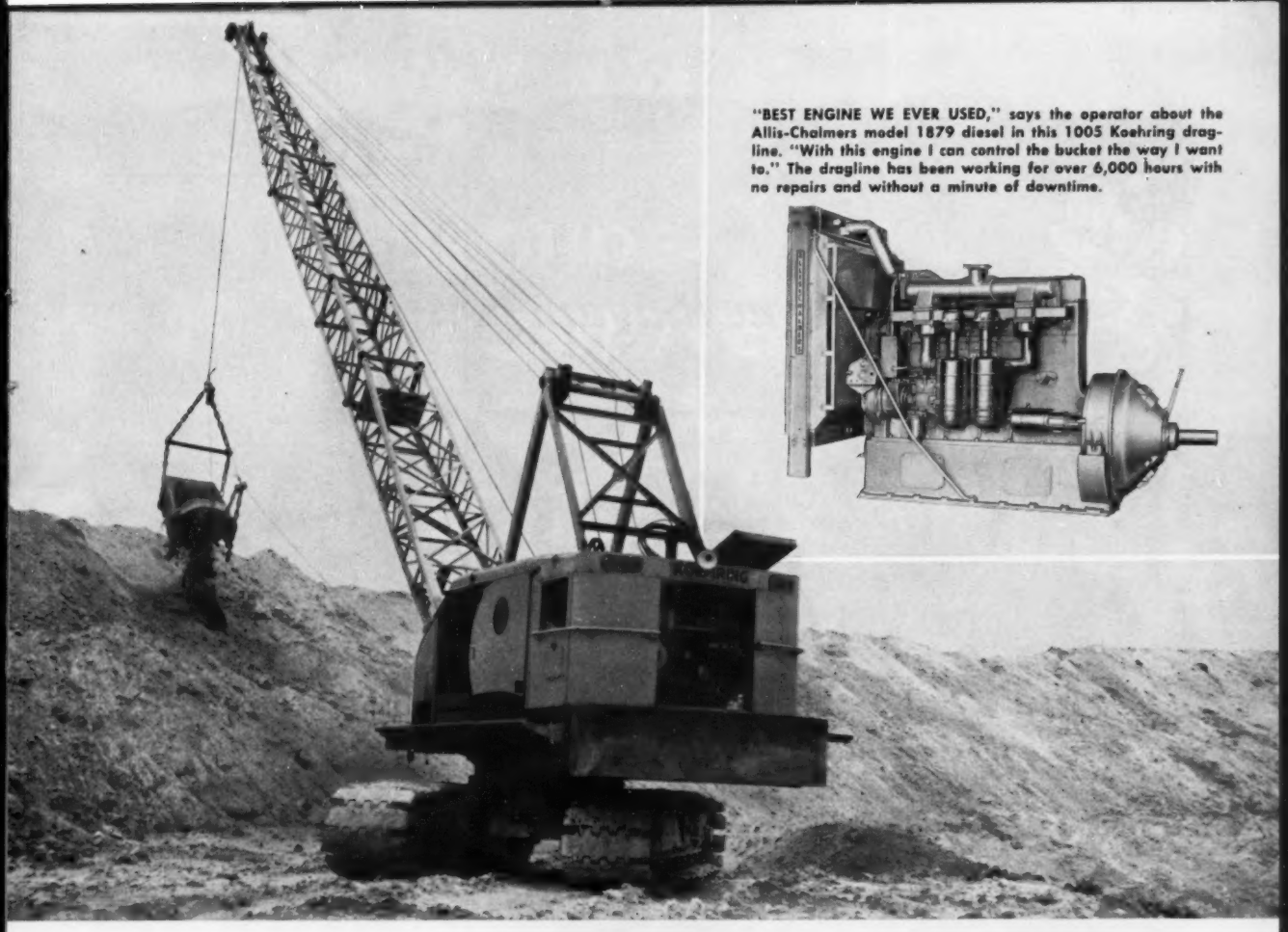
A CONSTANT STANDARD OF QUALITY IN EVERYTHING YOU NEED FOR DRILLING ROCK



"BEST ENGINE WE EVER USED," says the operator about the Allis-Chalmers model 1879 diesel in this 1005 Koehring dragline. "With this engine I can control the bucket the way I want to." The dragline has been working for over 6,000 hours with no repairs and without a minute of downtime.

Allis-Chalmers Engines give you DO MORE POWER

That's RIGHT for your needs

RIGHT PERFORMANCE — Allis-Chalmers engines have *Do-More Power*—high torque, maximum work for each operating dollar.

RIGHT TYPE AND SIZE — There's a wide range of sizes and types, 9 to 516 hp — benefit from *Do-More Power* in *all* your equipment.

RIGHT FUEL — You can choose the fuel that's most practical — diesel, LP or natural gas or gasoline.

RIGHT SERVICE BACKING — wherever you are. Your Allis-Chalmers engine dealer has stocks of parts, backed by nearby company branch stocks. He also has factory-trained servicemen — complete facilities to give you prompt service.

See your Allis-Chalmers dealer for full details on *Do-More Power* engines that are right in every way for your job. Allis-Chalmers, Engine-Material Handling Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

BC-11

we've done it again!
Once Again Earnest is first to present Black Diamond
"PAD-LOK"
nuts, safest, surest way to lock track pads on all CATERPILLAR TRACK ASSEMBLIES!
Be safe... be sure, with PAD-LOK nuts. High Carbon steel, double heat-treated, PAD-LOK nuts can be used over and over again. Unaffected by heat or cold. Send for prices and literature.
And, don't forget GROUSER STEEL. Earnest cuts it to any length you require. Genuine Black Diamond Grouser Steel is your insurance against DOWN-TIME!
Black Diamond Tractor Bolts are acknowledged top quality in the industry. Use them with PAD-LOK Track Shoe Nuts. Write today for complete prices and information on all these quality products.
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EARNEST MACHINE PRODUCTS CO.
12716 TRISKETT ROAD · CLEVELAND 11, OHIO

JOB TALK . . .
continued from page 23

Resurfacing

A new highway overpass resurfacing process developed by Reading Co. bridge engineers can reduce costly maintenance of these structures.

The process consists of spreading Amiesite (a bituminous concrete) over 4x10-in. planking to which a network of steel strapping topped by welded wire fabric has been anchored. Strapping and fabric are spot welded together and secured to the planking and stringers underneath by long drive spikes.

Combination of strap, spike, planking, and stringer adds rigidity to the bridge deck and eliminates plank movement under traffic. Steel fabric permits the Amiesite to resist pushing, shoving action of tires and keeps the riding surface from becoming uneven.

Before the Amiesite is put down, however, the plank flooring surface is dried by torch. Next a primer course or tack coat of asphalt emulsion is spread over the surface. First course of Amiesite 1½ in. thick then is spread from the mix truck's tail gate and raked and leveled by hand. A second course of Amiesite 1 in. thick is placed after the first course has been compacted.

Blasting Agent Cuts Costs

Reprints of the CM&E article, Blasting Agent Slashes Powder Costs by 75%, are now available. Price is, 25¢; each. Address orders to: The Editor, CM&E, 330 W. 42nd St., New York 36, N. Y.

NEW NEW NEW Convertible

½ yd. HYDROHOE-HYDROSHOVEL-HYDROCRANE

NEW all-hydraulic H-5 Hydrohoe-Hydroshovel combines high production with traditional Hydrocrane mobility, flexibility

You asked for it — here it is! Real production digging, yards and yards of it, fast . . . a total of 90 hydraulic horsepower at your command. Dipper reversed, it's a powerful swing loader and it's convertible to crane, clamshell, auger, etc. It's the all-new H-5 Hydrohoe-Hydroshovel!

NEW DIFFERENTIAL VALVE LETS YOU SELECT SPEED OR FORCE

Optional *speed* and *force* ranges are available in the digging cycle. That means you can cut through easy digging with maximum speed — or use the optional, higher-range force action (with slower speed) to dig through frozen ground, tough clay, coral, etc.

NEW PUSH-BUTTON SELECTOR VALVES STEER POWER WHERE IT'S NEEDED

Selector valve buttons on the control levers let you concentrate horsepower where you need it when you want it. Operator can double the speed of any motion at the touch of a button.

NEW COMBINATION OF RAM FORCES EXCEEDS 90 TONS

189,000 pounds of ram force combined in crowd-down, dig, and wrist actions. Combination of wrist action and telescoping boom provides more favorable dumping ranges (and cleaner dumps) both in tight and at maximum reaches.

PLUS ALL THESE FEATURES

Specialized boom telescope action — four hydraulic outriggers — low-cost carrier — up to 50 mph on open roads — all-hydraulic controls — short tail swing — four sizes of dippers.

See your Bucyrus-Erie distributor or send coupon for full details about the new ½-yd. H-5 Hydrohoe-Hydroshovel — tops for high-speed digging . . . big production digging . . . tricky digging.

234H58C

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

BUCYRUS-ERIE CO.

SOUTH MILWAUKEE, WISCONSIN

Gentlemen:

Please send me complete details on the new H-5 Hydrohoe.

Name _____

Company _____

Address _____

City _____ State _____

234H58C

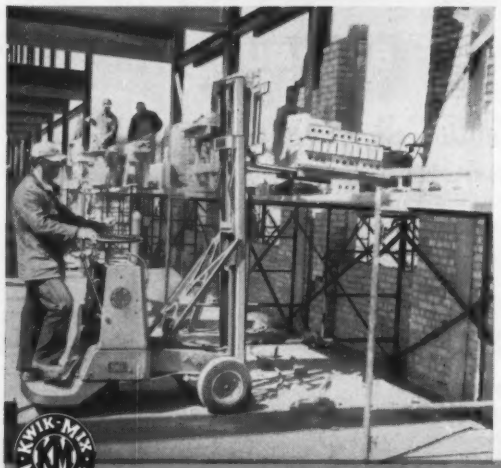
6 MOTO-BUGS supply 50 masons in 9-story building

Riding an elevator-hoist to upper floor of new apartment building, Kwik-Mix Moto-Bug power wheelbarrow delivers another hopper-load of mortar to the 50-man masonry crew.

Moto-Bugs were changed from hopper bodies to flatbeds, as needed — carried block and brick from the masonry saw to point-of-use.

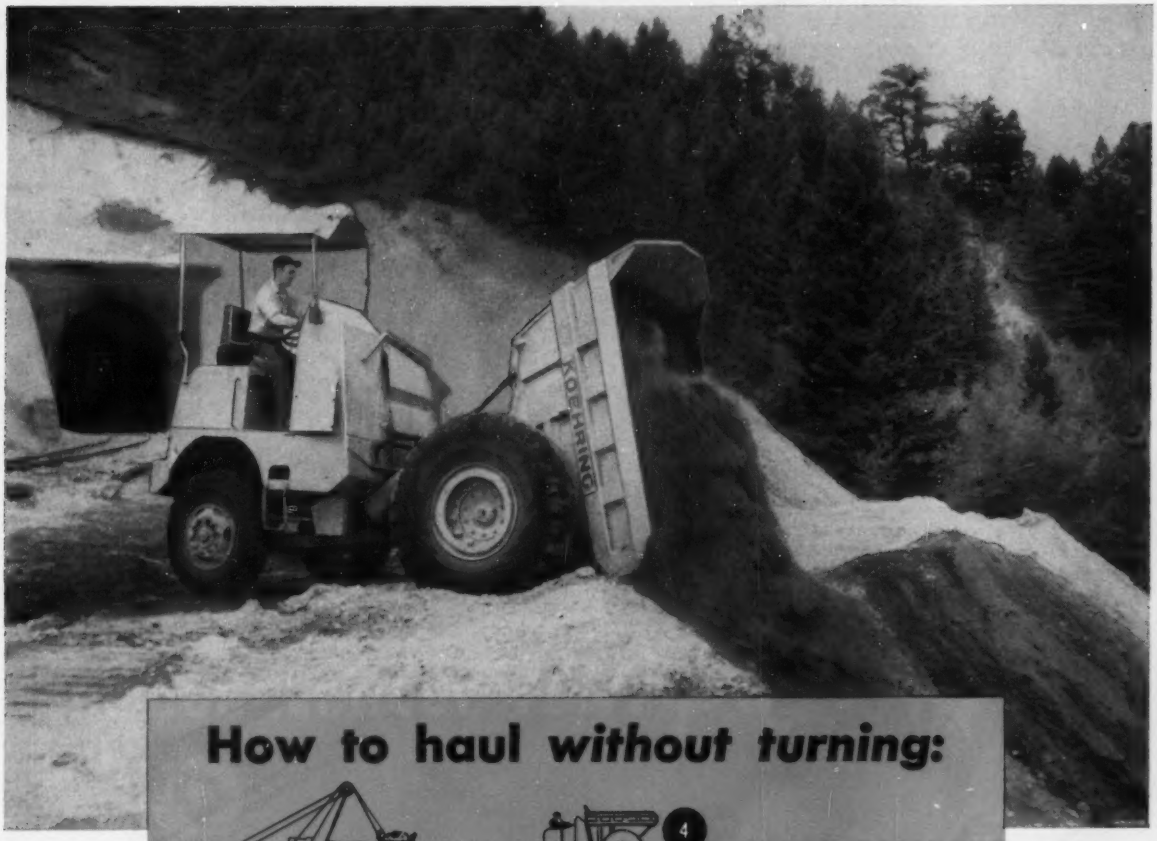
Distributing brick, block and mortar to a 50-man masonry gang on this 9-story housing project was a big job in itself! The men were laying about 30,000 brick a day. Hand wheelbarrows couldn't keep up with the crew, so the contractor mechanized his material-handling with a fleet of 6 Kwik-Mix S-10 Moto-Bugs. They were equipped with interchangeable ¾-ton capacity hopper bodies and flatbed platforms. Shuttling between ground stockpiles, masonry saws and mixers, the Moto-Bugs delivered mortar, facing brick and block in a steady stream to the work crew — rode to the upper floors on elevator-hoist. Light in weight, maneuverable, the S-10 turns in 61-inch radius — clears 33-inch doorways, can climb 16% ramp with ¾-ton load. 10 or 15 cu. ft. hopper and 32x48-in. platform are interchangeable with 6-foot fork lift. Better check the time and money *you* can save with low-cost Moto-Bug. Call Kwik-Mix distributor, or write us *today*.

KWIK-MIX Company, Port Washington, Wis.
A division of Koehring Company

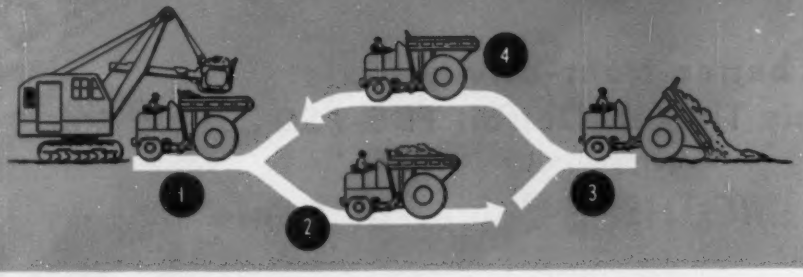


Hoisting palletized brick and mortar boxes onto scaffold for a new abbey, this S-10 Moto-Bug is equipped with interchangeable, 6-foot fork lift attachment. It has ½-ton capacity at 15-inch load center. A larger multiple-tool Moto-Bug is also available.

KWIK-MIX® *multiple-tool* MOTO-BUG®
Other products: CONCRETE • PLASTER-MORTAR • BITUMINOUS MIXERS



How to haul *without turning:*



1. **Dumptor gets load, with body forward in travel position.**
2. **Pulls away from shovel, body forward, ready to dump.**
3. **Dumps in one second — ready to shuttle back for next load.**
4. **Returns to shovel in high gear — all without turning.**

Shuttling between loading unit and dump area, Koehring® 6-yard Dumptor® travels round-trip *without turning*. It operates with equal ease in *both directions* along narrow haul roads, in tunnels, on overhead trestles — is especially practical for stockpiling, feeding crushers, loading cars. Dumptor gets this unique, no-turn advantage through a constant-mesh transmission that gives the same 3-speed travel in either direction.

Increases hourly output over 10%

By eliminating at least two slow turns on every trip, Dumptor cuts 30 seconds off normal cycle-time. This adds up to a substantial increase in yards or tons hauled per hour. For example — take a typical 1,000-foot haul where you are getting an average of 13.6 trips an hour with 2-turn operation. Even if Koehring Dumptor took the same time to load, haul, dump and return, its *no-turn* advantage would give you 15.4 trips. That adds up to an increase of 1.8 trips an hour on the same 1,000-foot haul.

Gravity-dumping cuts another 15 to 25 seconds off cycle-time. There's no waiting for slow-acting body-hoists. Operator trips the release lever, and *gravity* dumps the 6-yard load in *one second*. Costs stay low, because with gravity-dump, there are no expensive hoist replacement parts, or hoist maintenance.

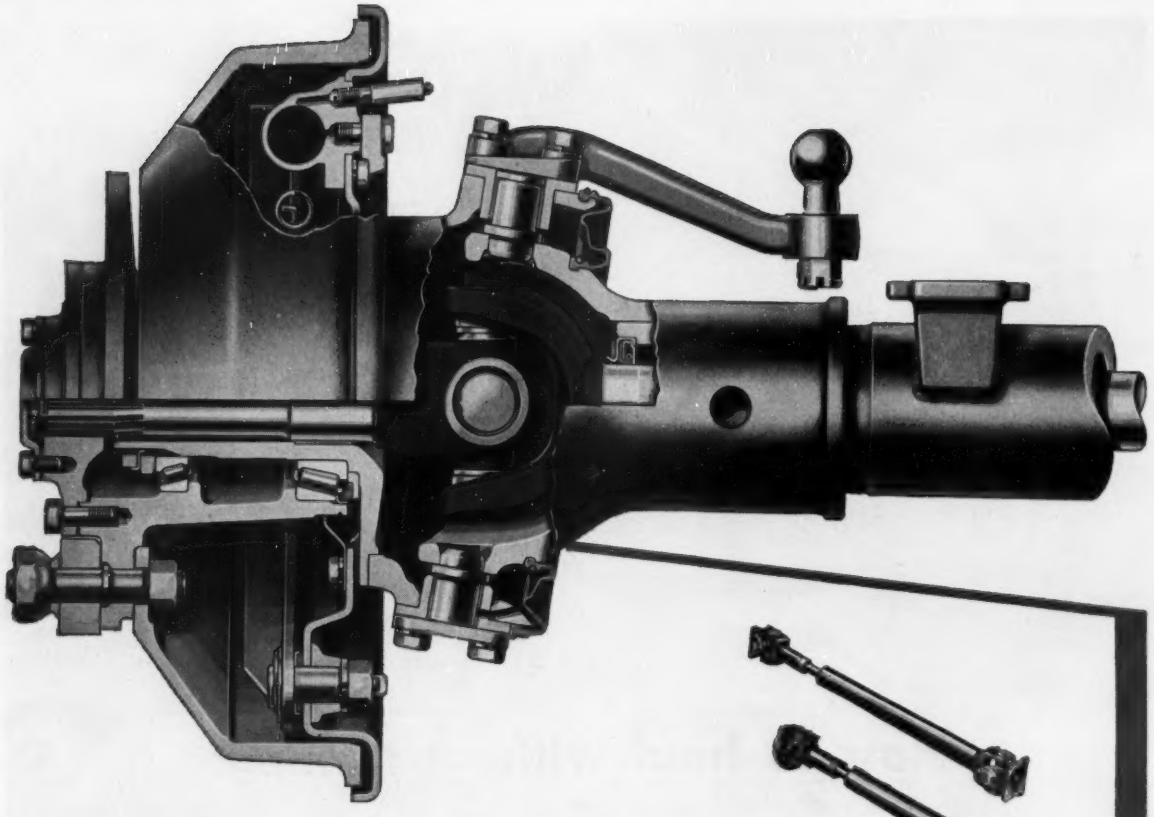
Check what these Dumptor advantages mean in increased production, lower costs on your work. Call your Koehring Distributor or write for more information to:

KOEHRING DIVISION of Koehring Company, Milwaukee 16, Wisconsin

KB12

KOEHRING® DUMPTOR®

EXCAVATORS • CRANES • *twinbatch*® PAVERS • FINISHERS • MUD-JACK®



For a better front-driving axle, get this Timken-Detroit FDS-750

equipped with

BLOOD BROTHERS Universal Joints

Here's another example of Blood Brothers' engineering cooperation . . . to produce ever-better truck components.

When this major axle source wanted an improved front-driving unit for a truck-building customer, their engineers and ours got together. The result shown above now provides users of famous brand trucks with *substantially increased capacity* on their front-driving axles.

Greater strength, better performance and lower costs may result for your products too—through a cooperative effort with Blood Brothers.

Just write or call—we'll arrange to meet at your convenience.

For a quick review of our products, request Bulletin 557.

STANDARD PROPELLER SHAFT ASSEMBLIES

SINGLE AND DOUBLE JOINTS FOR POWER TAKE-OFF USE

CLOSE-COUPLED JOINTS AND ASSEMBLIES

ROCKWELL-STANDARD CORPORATION

(Formerly Rockwell Spring and Axle Company)

Blood Brothers Universal Joints

ALLEGAN, MICHIGAN

UNIVERSAL JOINTS AND DRIVE LINE ASSEMBLIES

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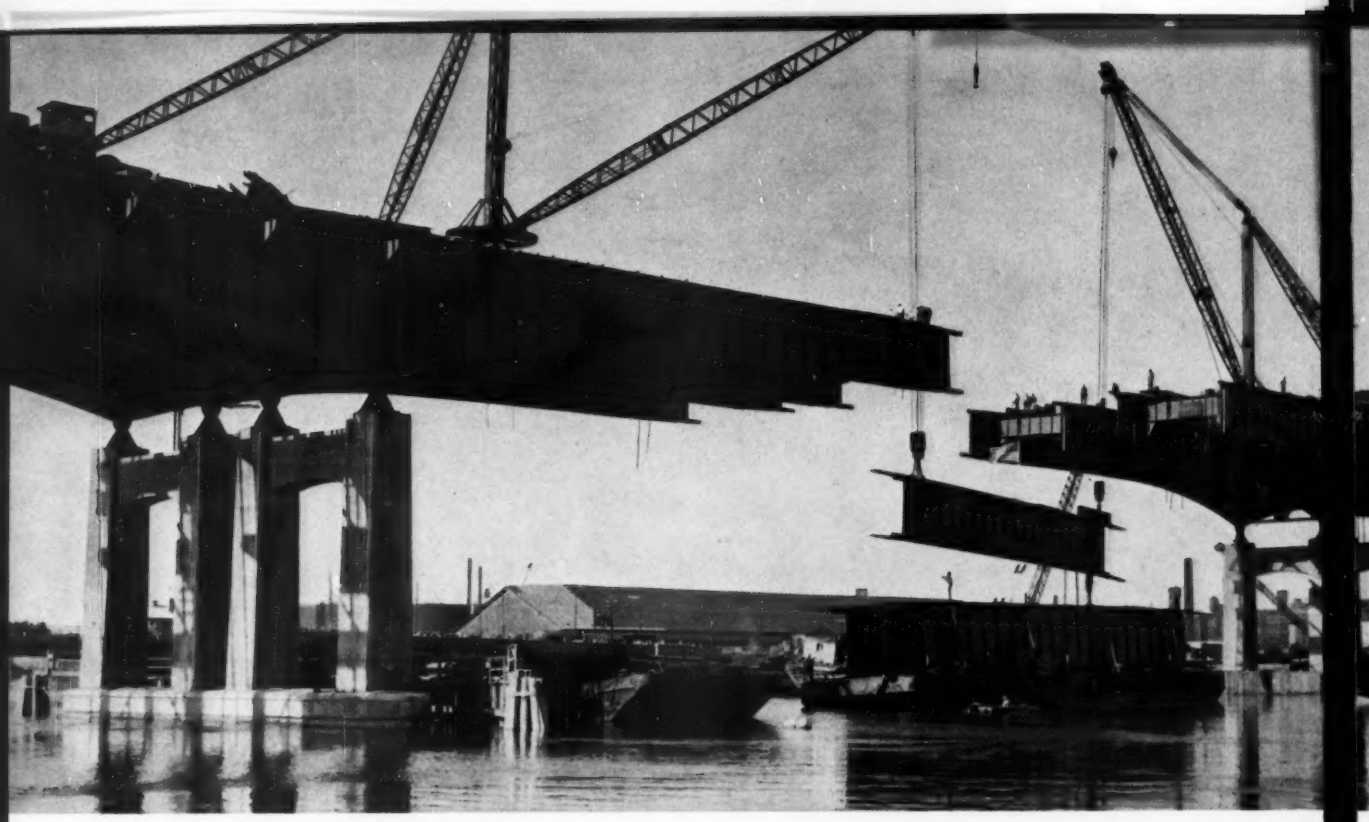
THE CONNECTICUT Turnpike
BETHLEHEM STEEL



NEARLY A QUARTER OF A MILLION TONS OF STEEL HELPED BUILD 129 MILES OF TURNPIKE

Some 8,000,000 vehicles are expected to use the Connecticut Turnpike this year. Officially opened on January 2, it is the state's largest public works project to date, costing almost $464 million.

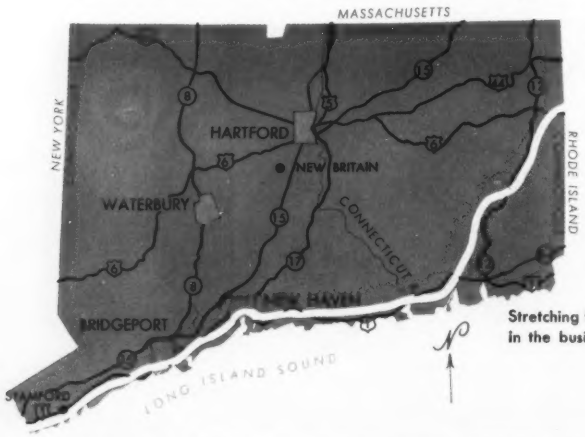
Slashing travel time between New York and the Rhode Island border, this new coastal expressway provides 129 miles of modern divided highway, with up to eight lanes in the busier sections. From start to finish, Connecticut State highway engineers kept safety foremost in their planning and design. Free of cross traffic for its entire length, traffic flows on and off through ninety interchange points. There are 198 spans to carry the expressway over railroads, streets, rivers and highways, and 76 other structures which carry roads over the Turnpike.

Everywhere along the Turnpike are evidences of steel's part in making the expressway a reality. Some of these are major structures, like the Quinnipiac River Bridge, longest continuous plate-girder span in the United States. Some 11,520 tons of structural steel went into this bridge, fabricated and erected by Bethlehem.

But steel is also present in less spectacular ways. Over 2½ million square yards of pavement reinforcement were used—some 8,000 tons—to strengthen the concrete slabs. Steel guard rail, both cable and beam, has a lineal length of some two million feet. Right-of-way steel fence stretches along 83 miles of the highway. Over 130,000 ft of steel bridge railing was used.

Steel was used in such varying applications as maintenance garages, restaurants, signs and signposts, culvert and drainage systems, toll booths and weight scales.

Bethlehem supplied a large part of all the steel used in the Connecticut Turnpike. Bethlehem supplies a long list of steel products for the construction industry (see page 4). And manufacturers of other types of highway products and construction equipment use many forms of steel made by Bethlehem.



Stretching from New York to Rhode Island, the Connecticut Turnpike is eight lanes wide in the busier sections. There is an average of one interchange for each 1.4 miles.

The Quinnipiac River Bridge at New Haven is one of the major structures on the Turnpike. The bridge's 387-ft-long center span is the longest continuous plate-girder span in the United States. Bethlehem fabricated and erected 11,520 tons of steel for the bridge, and supplied steel for many other of the 274 bridges and viaducts.

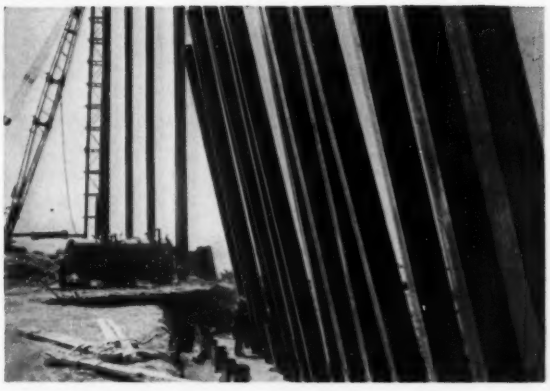
TURNPIKE FACTS AT A GLANCE

Conceived and operated by Connecticut State Highway Department
Towns and cities served—29 • Length—128.66 miles
Bridges and viaducts—274 • Total distance lighted—53 miles
Interchanges—90 • Dual service stations—7 • Restaurants—8
Toll stations—8 • Shoulders—10 ft wide • Lanes—12 ft wide

CONSTRUCTION FACTS AT A GLANCE

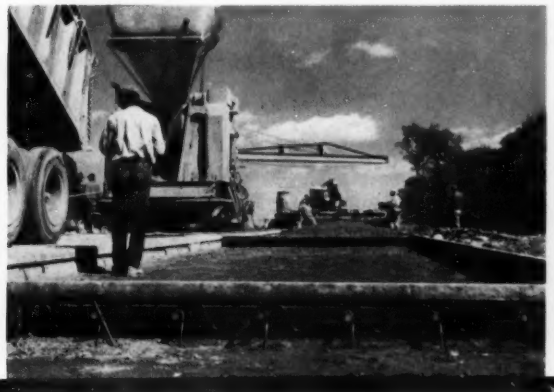
Portland cement used—2,309,500 bbls
Concrete for structures—722,600 cu yds
Concrete for pavement—684,900 cu yds
Rock excavated—9,182,000 cu yds
Earth excavated—16,744,300 cu yds
Steel required:
Fabricated structural—122,700 tons • Piling—46,000 tons
Pavement reinforcement—2,652,000 sq yds
Reinforcing bars—45,700 tons • Guard rail—2,151,300 ft
Fence—166 miles • Expansion and contraction joints—561,400 ft

Turnpike construction required the removal of over 9 million cu yds of rock. Bethlehem drill steel was widely used in drilling blast holes. And Bethlehem wire rope is the muscle on power shovels and pile-drivers.



Nearly 50,000 tons of Bethlehem piling were used in preparing foundations for the Turnpike's major structures. In addition to H-piles, sheet-piling cofferdams facilitated construction of water piers for the bridges.

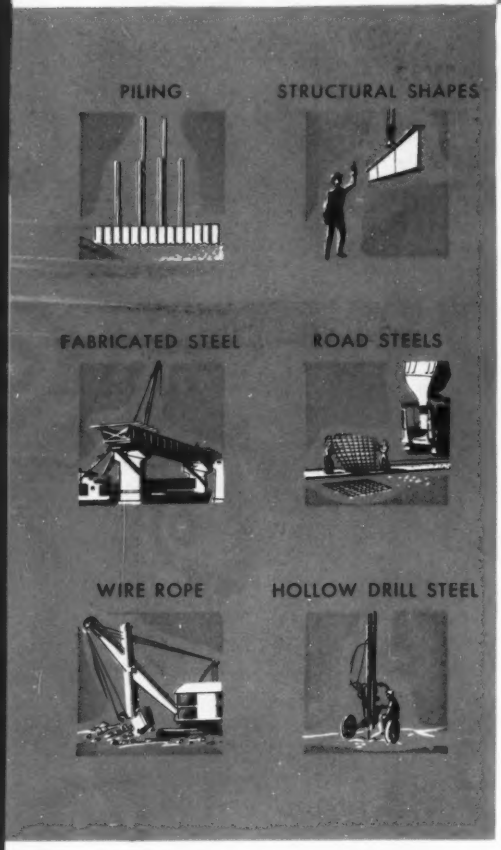
Paving of the Turnpike called for thousands of tons of Bethlehem concrete reinforcing bars, dowel units, bar mats, and hook-bolt assemblies. Steel pipe, sheets, and culverts were used in drainage systems.



Millions of feet of steel guard rail, both the cable and solid-beam types, protect motorists and truckers along the Turnpike. And over 130,000 ft of steel railing is used on bridges.

There are many and varied ways in which steel and steel products were used after the roadway was completed. Obvious applications are the toll booths, restaurants, garages, direction signs, weight scales, snow removal equipment and many others.

A COMPLETE LINE OF CONSTRUCTION STEEL



Bethlehem furnishes a complete line of products for the construction industry:

Abrasion-resisting steel
Bar mats and welded fabric
Barbed wire
Blast furnace slag and commercial stone
Bridge floor
Bridge rail
Cables for suspension bridges
Center strip and keyway
Centering, solid steel over joints
Culvert sheets, galvanized
Curb facing
Digging bars
Drill steel, hollow and solid
Dowels, hook-bolt
Dowel units
Fabricated steel bridges and buildings
Fasteners of all types
Fence and posts
Form stakes
Form wire
Guard rail—beam and cable
Hardware, timber bridge
High-strength bolts
Joists, open-web, shortspan and longspan
Nails
Paving steels
Piling, steel sheet and H-piles
Pipe, large-diameter welded
Pipe piles
Pipe
Plate
Posts, steel fence
Posts, steel guard rail
Reinforcing bar accessories
Reinforcing bars, plain and fabricated
Rock bolts
Roofing and siding, steel
Structural steel shapes
Tool steel
Tunnel-liner plates
Tunnel ribs
Tunnel segments
Wire rope and slings
Yieldable arches for tunnel roof support

Descriptive literature is available on most of these Bethlehem products. And our catalog, "Steel for Highways," provides details on many of the steel products which are used in highway construction.

If you'd like more information, just fill out the coupon below.

Bethlehem Steel Company
701 E. Third Street
Bethlehem, Pa.

Please send me literature describing:

_____

_____

Name_____

Company_____

Address_____

City_____ Zone_____ State_____

You may want to see the new Bethlehem motion picture "Steel in Concrete," a technical study of reinforcing steel. This and other Bethlehem films are distributed through Modern Talking Picture Service, Inc. with offices in most major cities.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

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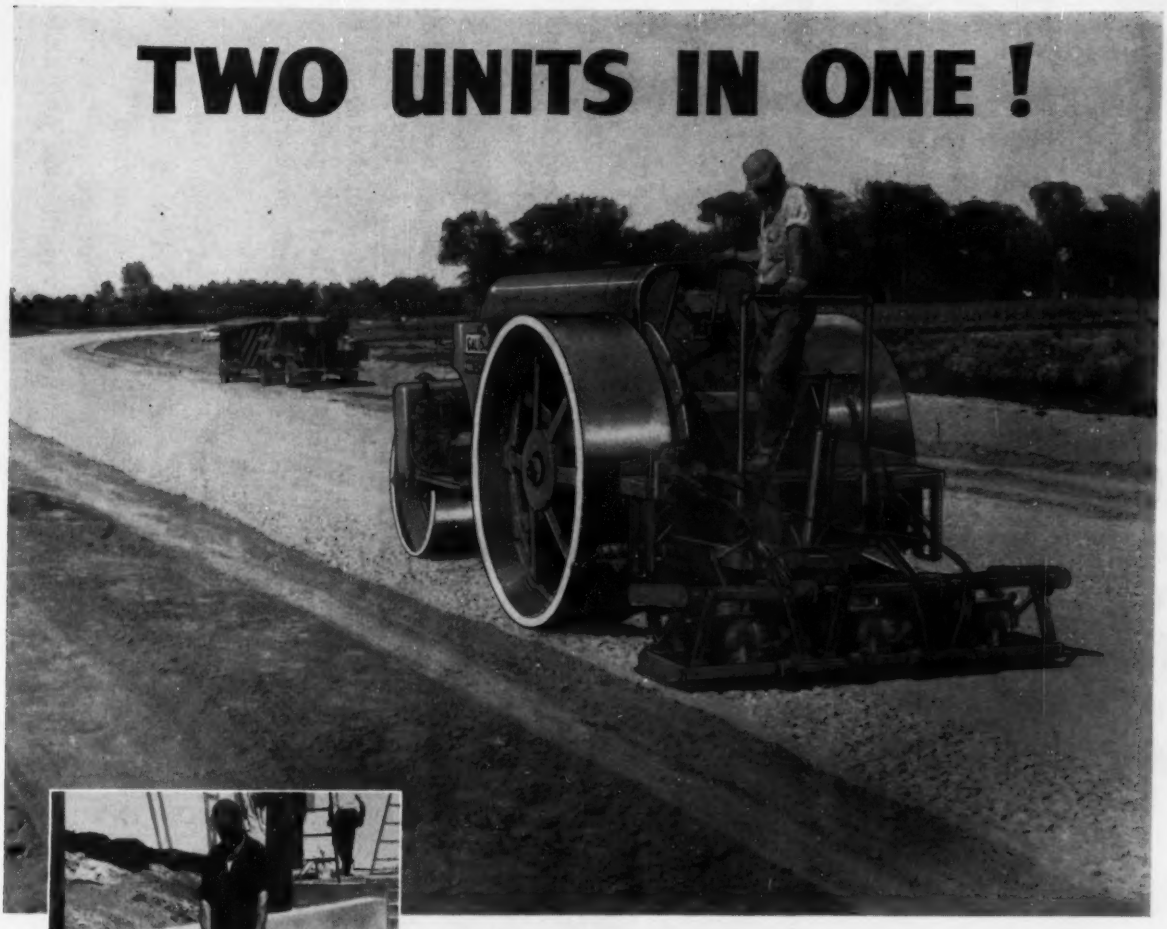
586, Printed in U. S. A.

BETHLEHEM STEEL

TWO UNITS IN ONE !



MULTI-PURPOSE USE!

Individual compactor units of the Jackson Electric Vibratory Compactor may be detached and used as manually-guided, self-propelled compactors for confined areas inaccessible to multi-unit machines.

Compactor power unit can be used as a lighting plant or for operation of small power tools.

GALION 3-Wheel Roller with Electric VIBRATORY COMPACTOR

A "Chief" or "Warrior" model Roller with Jackson Vibratory Compactor accomplishes both static and dynamic compaction. You get the compressing action of massive roller weight plus the consolidating action of vibration (4200 three-ton blows per minute).

So effective is this double compaction effort, the most rigid State and Federal density specifications (including Proctor, Modified Proctor, and AASHO-T99-49) are often attained in ONE pass per lift. It leaves a smooth flat surface—no waves or "washboard" effect.

This combination SAVES YOU MONEY!

By eliminating one machine and one operator, you save on labor costs and on equipment investment. You save on lower overhead, operating time and expense.

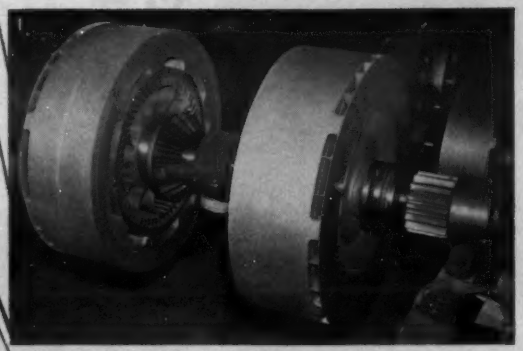
Write for literature.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices, Galion, Ohio, U.S.A.

GALION
ESTABLISHED 1907

MOTOR GRADERS & ROLLERS

P&H announces world's greatest truck crane 70 tons at 15 ft. radius



MAGNETORQUE, the electro-magnetic swing assembly, eliminates swing linings and friction on your swingers — no wear, no adjustments — faster work cycles, less operator fatigue, increased production.

Here's another example of P&H design leadership in meeting contractors' needs for larger capacity equipment to hold down costs and do more work at a greater profit.

It's the big P&H 775-TC. An innovation on rubber. Handles 200 ft. of boom and jib. Smooth "stepless" swing movement of the boom with capacity load is the result of an electro-magnetic swing assembly. It's called Magnetorque®, exclusive P&H development appearing for the first time on a truck crane.

A full 70-Ton capacity at a practical 15' radius. This tremendous lift and reach are combined with exceptional truck crane mobility in the 775-TC. Superior P&H engineering has scientifically distributed the weight over *four* axles to allow highway travel.

Concrete pouring, setting steel or precast concrete are all done more profitably and safely with this heavy-duty P&H crane. It combines the maneuverability and speed of truck cranes with the stability and capacity formerly found only in crawler cranes. Handles jobs that in the past had to be lifted by a crawler crane or double-lifted by smaller rigs. Call your P&H dealer or write . . .

HARNISCHFEGER

Construction & Mining Division
Milwaukee 46, Wisconsin

THE BEST SAW OPERATORS REACH FOR THE BEST BLADES

That's Why

4 OUT OF 5 BUY...

Clipper
"SAWS RIGHT THRU"
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DIAMOND BLADES

TAKE THIS MD7245T . . .

It's a New Clipper Bond with a full 3/16" Diamond Depth—that will positively out-cut, out-last and out-perform ANY BLADE ever developed, to cut all HEAVY and LIGHTWEIGHT BLOCK, STONE and BASIC REFRACTORIES. Here's a Long-Life Blade that will give you real performance! Call your Clipper Factory Trained Representative for a performance test on your job or for Same Day Shipment from your nearby Clipper Branch Warehouse.

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SUPERMATIC MASONRY SAWS—
No Head Angle Adjustments to Make.
HI-LO Control Wheel Does Everything!

Ask your Clipper Factory Trained Representative for **FREE TRIAL!**

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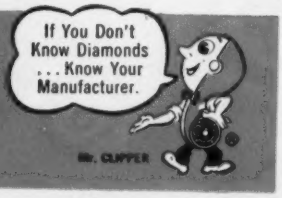
FACTORIES IN ENGLAND—FRANCE—GERMANY—ITALY



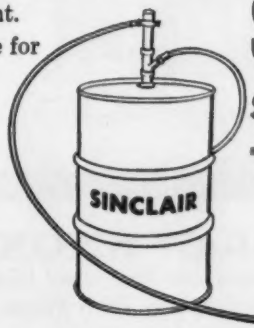
Maintenance Tips from Dino, the Sinclair Dinosaur

Rugged Oil for Rugged Duty

Tackling tough jobs and getting 'em done on time demands a lot from your equipment. Sinclair Super TENOL® Motor Oil will help keep your equipment working on the job longer – and more profitably for you.

This superior lubricant, a blend of high viscosity index base oils and selected additives, provides maximum protection against varnish, sludge, rust and acid corrosion. It guards your equipment against the rugged effects of high temperatures and continuous stop-and-go operation.

Refill now. There's a type of Sinclair TENOL Motor Oil to meet the requirements of your equipment. Contact your local Sinclair Representative for further information, or write for free literature to Sinclair Refining Company, Technical Service Division, 600 Fifth Ave., New York 20, N. Y. *There's no obligation.*



SINCLAIR
SUPER
TENOL®

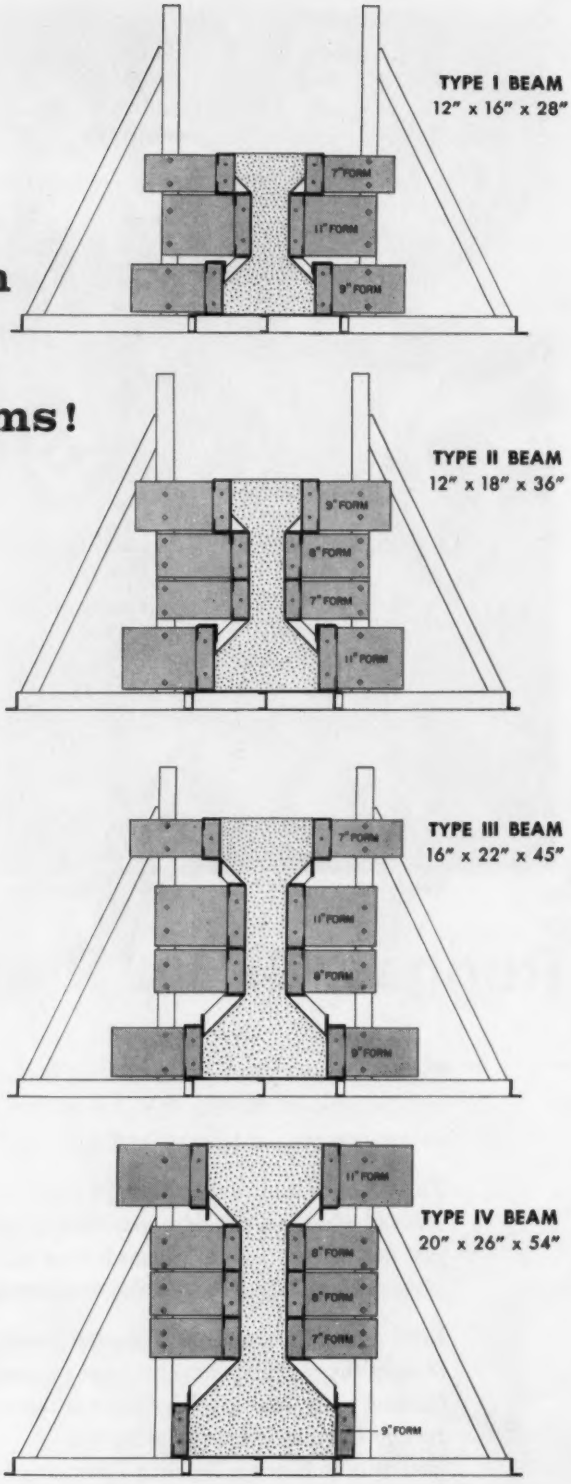
Now one adjustable Blaw-Knox Steel Form for casting all 4 sizes of AASHO bridge beams!

can be used for box-girders and building beams too

Now Blaw-Knox design leadership makes it possible to cast all four sizes of AASHO approved bridge beams in *one adjustable steel form*. In addition, the versatile form can be adapted to cast box girders, and a wide variety of structural beams. This means that pre-stress operators can cover bigger segments of the market with one basic investment in forms.

Starting with a pair of structural frames, side panels 7″, 8″, 9″, 11″ can be mounted vertically to form 28″, 36″, 45″ and 54″ bridge beams. The side panels can also be adjusted horizontally on the frames to manufacture additional products of varying contours and dimensions. Bevel panels, fillers, pallets, and end block forms are furnished to meet individual requirements.

Unit design with interchangeable components keyed to your individual business requirements make the Blaw-Knox *adjustable steel form* your best investment in the booming pre-stress market. You can get the full story by contacting the Steel Forms Department now.



BLAW-KNOX

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Replaces power shovel with 4-In-1

...gets versatility unlimited!

Digging, 'dozing, clearing, loading—this International Drott TD-9 4-In-1 replaces the limited-duty performance of a ⅜ cu. yd. power shovel. Tony Pacifico Company, Charleston, W. Va., practically builds a 100-ton-per-hour stone-quarrying operation around 4-In-1 versatility. Above, using bulldozer action, the 4-In-1 is removing overburden from a 60-foot-thick rock stratum. Owner formerly had to hire a dozer in addition to the power shovel to clear and strip!

Using a back-drag motion of the clam lip, with high-reaching 4-In-1 clamshell action, the Pacificos do a fast, low-cost job of bank-sloping—to forestall earth slides into the quarry. The exclusive, big-capacity clamshell also gives speedy "stand-and-fill" action of loose materials.

Pushing over a hardwood sapling, the Pacifico 4-In-1 is used for land-clearing ahead of stripping quarry overburden. For uprooting larger trees, a grubber blade can replace the 4-In-1 bucket—to apply the tremendous lifting power of exclusive Drott pry-over-shoe break-out action!

Sticky clay dumps clean—quits gumming the works and slowing overburden removal when the Pacificos use 4-In-1 clamshell bottom dumping. Opening the clam pulls sticky materials from bucket surfaces—gravity pull does the rest, to give the 4-In-1 positive self clean-out!

Prove 4-In-1 four-machine versatility unlimited! Move the machine-selector lever—try the built-in *clamshell, "carry-type" scraper, bulldozer and Skid-Shovel* actions. Compare exclusive pry-over-shoe break-out action for digging hard materials other rigs can't budge! See how exclusive Hydro-Spring swallows shock, protects performance. Ask your International Drott Distributor for a 4-In-1 demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

Send for free catalog today

International Harvester Company
180 North Michigan Ave., Chicago 1, Illinois

Gentlemen:
Please send 4-In-1 catalog literature checked:

☐ 1-yd. TD-6 (CR-640-H) ☐ 1½-yd. TD-9 (CR-627-H) ☐ 2¼-yd. TD-14 (CR-635-H) ☐ 3-yd. TD-18 (CR-632-H)

Name_____

Street or R.F.D._____

City_____ State_____

Hauling through hub-deep mud or spreading sub-base to specs...

Paywagon® fleet delivers 90% working every shift on Illinois

A fleet of six International 75 Paywagons is making performance history—spearheading 5.4 miles of Illinois Toll Road construction, and relocating four miles of creek channel for CKG Associates,* on ex-marshland skirting Western Springs, Illinois.

Taking the mauling abuse of highballing 15-yard loads over rutted haul roads, chuck-holes, and grades, the Paywagon fleet is setting an amazing 90% "availability" record—through month after rugged month of 10-hour-shift days!

"Paywagon availability has been over 90% on this job," reports William P. Cagney, Jr., president, Contracting Material Co.

Battling over muck and gumbo fill that would mire low-slung rigs to a belly-dragging stall, the Paywagons give competitive bottom-dumps on the job a real lesson in traction, maneuverability, and clearance!

In addition, CKG Associates are using the cost-cutting controlled dumping Paywagon feature—another big International exclusive—to lay sub-base wholesale with dump-truck accuracy!

Try 75 Paywagon soft-fill beating traction and clearance—compare its load-speeding turbo-charged diesel hp! Measure advantages like planetary final drives. See how Hydro-Steer, selective and dual-wheel braking add operating ease and safety. Try controlled dumping accuracy. See your International Construction Equipment distributor for a demonstration.

*CKG Associates is composed of Contracting Material Co., Kenny Construction Co., and Louis Garavaglia. I. C. "Red" Harbour is Project Manager on the CKG job.

Four Paywagons of the six-unit fleet keep busy hauling from creek channel excavation. "Not a single Paywagon unit has lost a whole working shift all winter for downtime reasons," states Grading Supt. Ted M. Sliger.

International®
Construction
Equipment

International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill.

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

Here comes a 75 Paywagon with a 15 cu yd load hauling in typical gumbo conditions. "These 2-axle units will pull through the soft fills much better than any others we've used," states William P. Cagney, Jr., President, Contracting Material Co.

availability toll road!

Paywagon speed and "off-road" mobility enable the contractor to keep ahead of schedule on sub-base spreading with only two "75" units! The toll road will accommodate six 12' traffic lanes. The contract involves building 16 traffic interchange structures!

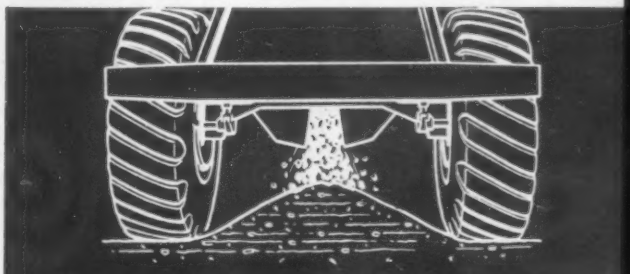
How Paywagon controlled dumping lays sub-base to engineer's specs!

Paywagon design provides simple, one-cable door control. An ingenious cable sheave arrangement, plus geared-together clam-action door design gives a simple, trouble-free Paywagon dumping mechanism.

This positive door-opening control permits the operator to windrow material accurately, or spot his full load exactly where desired.

High Paywagon clearance of 41 inches gives ample room to straddle dumped loads. The clam doors open out and up—leaving no dangling projections to foul up in windrows or fills.

Only the International Paywagon gives you this positive controlled dumping.



Dragline-loaded Paywagons haul select sub-base material — precision spread it with controlled dumping for blading and compacting in 5-inch lifts. Sketch shows how cable controlled clam doors permit placing 15 cu yd loads with dump-truck accuracy. Motor grader spreads the material.

US RUBBER AIR HOSE

Would you use this

for this?

Then why pay extra for heavyweight, muscle-bound air hose, when U.S. Rubber Air Hose is easier to handle, more flexible, and withstands higher working pressures...at lower end cost.

When you're on a tight budget and a tight schedule, there's no sense in throwing dollars away buying overweight, hard-to-handle air hose. Such hose—with excessive, unnecessary plies—is out of date, will slow you down, and leave you out of pocket.

Now, thanks to "U.S." engineering, you get the optimum balance in air hose—easier to handle *and* at the same time tougher and less expensive. What's more, U.S. Air Hose handles higher working pressures than the conventional air hose you might be using.

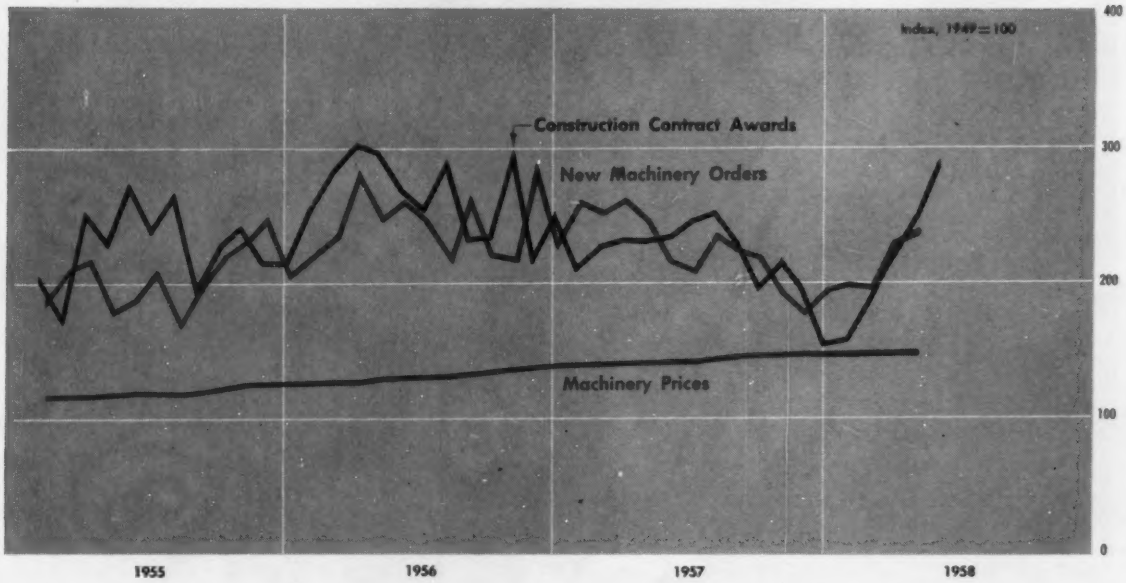
Every hose in the complete "U.S." line is designed to give maximum service, even under unreasonable demands. Take advantage of the skill and long experience of "U.S." Hose technicians, plus "U.S." research and production facilities. Get U.S. Air Hose at your local authorized "U.S." Hose Distributor, or write us at Rockefeller Center, New York 20, New York. In Canada: Dominion Rubber Co., Ltd.

US RUBBER Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N.Y.

Trends in the Machinery Market



Price Index

	APR 1958	MONTH AGO	YEAR AGO	% CHANGE 1957-1958
All Types of Equipment	165.4	165.4	157.5	+ 5.0
Cranes, Draglines, Shovels	**163.2**	**163.1**	**159.2**	**+ 2.5**
Shovel, ½ cu yd	153.7	153.7	150.9	+ 1.9
Shovel, ¾ cu yd	167.4	167.4	162.9	+ 2.8
Shovel, 1-1½ cu yd	175.8	175.8	170.6	+ 3.0
Shovel, 2-2½ cu yd	153.9	153.9	143.7	+ 7.1
Shovel, 3-3½ cu yd	162.7	162.7	154.1	+ 5.6
Shovel, 6 cu yd	179.5	179.5	173.2	+ 3.6
Crant, truck mounted	164.2	164.2	161.6	+ 1.6
Crane, tractor mounted	135.1	135.1	126.6	+ 6.7
Bucket, clam shell	152.7	152.7	152.7	0
Bucket, dragline	180.8	180.8	180.8	0
Scrapers and Graders	**158.8**	**158.8**	**150.1**	**+ 5.8**
Scraper, 4 Wheel, 8-10.5 cu yd	155.0	155.0	155.0	0
Scraper, 4 Wheel, 12-15 cu yd	151.3	151.3	143.9	+ 5.1
Scraper, 2 Wheel, 14-18 cu yd (a)	122.7	122.7	113.6	+ 8.0
Grader, heavy duty	164.0	164.0	154.9	+ 5.9
Grader, light & medium	161.2	161.2	152.2	+ 5.9
Tractors (non-farm, incl industrial)	**180.5**	**180.5***	**169.3**	**+ 6.6**
Wheel-type, off highway (a)	128.4	128.4	118.6	+ 8.3
Crawler-type, 45-60 dhp	182.6	182.6	172.3	+ 6.0
60-80 dhp	185.8	185.8	176.6	+ 5.2
80-120 dph	186.7	186.7*	172.3	+ 8.4
120 and up dhp	191.8	191.8	178.3	+ 7.6
Machinery, Tractor Mounted	**161.7**	**161.7**	**155.2**	**+ 4.2**
Dozer, cable controlled	151.6	151.6	149.0	+ 1.7
Dozer, hydraulic controlled	177.3	177.3	170.6	+ 3.9
Cable power control unit	147.9	147.9	139.9	+ 5.7
Loader, shovel type	153.9	153.9	146.7	+ 4.9
Specialized Machinery	**150.7**	**150.7**	**144.6**	**+ 4.2**
Ditcher	154.1	154.1	151.8	+ 1.5
Roller, tandem	193.2	193.2	181.7	+ 6.3
Roller, 3 wheel	161.6	161.6	154.8	+ 4.4
Ripper and rooter	143.3*	143.3*	138.1	+ 3.8
Dewatering pump, 10 M gph	111.7	111.7	108.1	+ 3.3
Dewatering pump, 90 M gph	144.3	144.3	133.3	+ 8.3
Portable Air Compressors	**159.1**	**159.1**	**146.2**	**+ 8.8**
Contractor's Air Tools	**164.5**	**164.5**	**150.0**	**+ 9.7**
Mixers, Pavers, Spreaders	**149.2**	**149.2**	**142.6**	**+ 4.6**
Mixer, portable, 11 cu ft	160.1	160.1	151.7	+ 5.5
Mixer, portable, 16 cu ft	163.7	163.7	153.6	+ 6.6
Mixer, truck, 6 cu yd	128.1	128.1	122.1	+ 4.9
Mixer, paving, 34 cu ft	185.2	185.2	174.3	+11.0
Concrete finisher & spreader	173.0	173.0	166.3	+ 4.0
Bituminous distributor	122.4	122.4*	115.9	+ 5.6
Bituminous spreader	160.3	160.3	160.3	0
Bituminous paver	153.0	153.0	149.8	+ 2.1
Off Highways Trucks, Wagons (b)	**100.0**	**100.0**	.....	.....
Contractors off highway truck (b)	100.0	100.0	.....	.....
Trailer dump wagon (b)	100.0	100.0	.....	.....

• a January, 1955=100 • b January 1958=100 • * Revised
BLS Primary Market Price Indexes, U.S. Department of Labor, 1947-49=100

Contract Awards Move Sharply Higher

The 1958 upswing in heavy construction contracts gained momentum in May as contractors chalked up the largest dollar volume of awards since October, 1956. May contract awards as reported by Construction Methods set an all-time high for the month.

The Contract Award Index (based on 1949=100) soared to 295, the fifth consecutive monthly increase and 17% more than April. Moreover, contract volume topped May, 1957, by 25%. This is a much greater margin over the year-ago pace than April's 8% gain. It pushes the five months contract total to within 2% of last year. By contrast, awards trailed 1957 by 21% at the end of February and by 16% at the end of March.

Machinery Orders Up; Prices Hold Steady

The snappy recovery in new construction business—May was nearly double December's low volume—brought a surge in contractors' orders for new machines.

April orders for new machines boosted the index to 242 (1949=100). This was 4% more than March and the biggest monthly order volume since April, 1957, when the McGraw-Hill Economics Department Index was 252.

Orders for construction machines still are below the near-record volume of early 1957, but the gap is narrowing fast. April orders were within 4% of a year ago, whereas March was off 13%, and the first two months of this year were down 23%.

Machinery prices continue to hold steady. During the first four months of this year, the Bureau of Labor Statistics index of manufacturers' prices hardly moved. The April 15 index of 165.4 (1947-49 prices are 100) is unchanged from March 15.

Road builder says . . .

with ESCO
Cast 12M Points and Adapters

1 ONE-SOURCE SAVINGS—*ESCO* Points and Adapters are quickly available for *every digging tool* from your *ESCO* dealer. By using *ESCO* Points and Adapters on *all* your digging equipment you can reduce your point inventory, save ordering time and consolidate purchases for additional savings.

2 INCREASED YARDAGE—*ESCO* Points and Adapters step up production because they are scientifically engineered. Digging angle, in relation to bucket lip, is carefully calculated for maximum digging efficiency. Points are self-sharpening. There are eight point shapes to choose from.

3 POINTS OUTLAST ALL OTHERS—Because *ESCO* Points and Adapters are *cast* there is extra metal where it counts: at the wear points. *ESCO* 12M alloy steel has outstanding abrasion resistance and shock-absorbing toughness. Heat treating, differential hardening add extra-long life.

4 REDUCED DOWNTIME — Quick-change design of *ESCO* Points permits removal and replacement of four points in five minutes without special tools.

No other manufacturer offers such a complete selection. See your ESCO dealer for details today.

ESCO®

ELECTRIC STEEL FOUNDRY COMPANY

2149 N. W. 25TH AVE. • PORTLAND 10, OREGON

MFG. PLANTS AT PORTLAND, ORE. AND DANVILLE, ILL.

Offices in Most Principal Cities

ESCO INTERNATIONAL, NEW YORK, N. Y.

IN CANADA ESCO LIMITED

Road builder says . . .

"Every contractor on our kind of work should have BANTAMS"

Working in heavy mud, BANTAM crane spots pipe at roadside. Whether it's lifting, digging, placing concrete or any of a dozen uses, BANTAM's easy, accurate control means big, low-cost production.

BANTAMS take over 12 different assignments on big turnpike contract

On its prime contract for 2 sections, totaling 9 miles of the Richmond-Petersburg Turnpike, The Villa Contracting Co. of Westfield, N.J., is moving 4 million yds. of earth and building 18 bridges. Two BANTAM T-35's are on the job—one equipped as crane, the other as back hoe.

"Production-wise, you can't beat a BANTAM," says Roger Morra, project manager, regarding this fast-moving, fast-working BANTAM team. The 2 rigs shuttle back and forth between job-sites 15 miles apart to handle the following assignments:

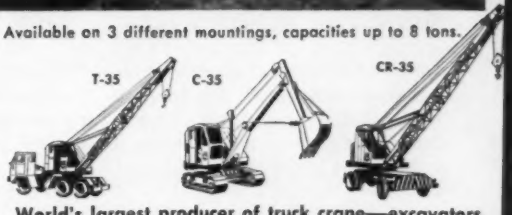
1. Excavate for drainage pipe and culverts
2. Dig head wall footings
3. Strip and handle concrete forms on bridges
4. Pour concrete for head walls
5. Lower and handle pipe
6. Spread gravel in drainage ditches with clam
7. Pour bridge concrete decks
8. Excavate for bridge footings
9. Grade around bridges and slopes
10. Excavate for basins
11. Clean up around bridge piers and abutments
12. Lifting work in repair of other equipment

"BANTAMS saved us 20% on pipe work alone"

The BANTAMS excavate for and lay 90% of all top pipe. With approximately 60,000′ laid already, the two BANTAMS average up to 1200′ of 6″ pipe per 9-hour day—digging, setting pipe and backfilling—and some days up to 1600′. "It would take 4 slower moving rigs to replace our 2 BANTAMS," says Morra, "and they require the least maintenance of any machines on the job." In fact, there has been no down time in one year of continuous use—on the toughest jobs.

Big production and job economies like these are yours with a BANTAM. It's the most job-proved rig in the industry. Ask your BANTAM distributor.

Available on 3 different mountings, capacities up to 8 tons.



World's largest producer of truck crane—excavators

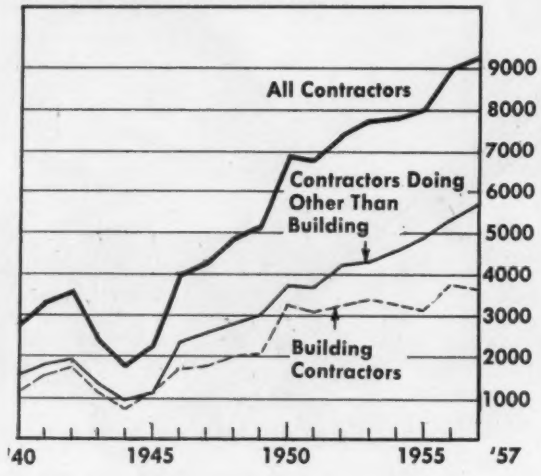
RC-174

Yours for the asking! Helpful new specification bulletins on the BANTAM of your choice. Get yours now! Schield-Bantam Company, 221 Park Street, Waverly, Iowa.

Visit your friendly BANTAM DISTRIBUTOR . . . see how BANTAM benefits your picture better!

SCHIELD Bantam Co.

9,234 Contractors with Volume of $100,000 or More . . .



. . . Handle 18,059 Projects Costing $13.6 Billion

Reported by Construction Methods & Equipment

Type of Work	Number of Contractors 1957	% Chg. fr '56	Number of Projects 1957	% Chg. fr '56	Contract Value (millions) 1957	% Chg. fr '56
TOTAL	9,234	+ 3	18,059	– 1	$13,646	– 7
Total—Other than Building	5,628	+ 7	12,058	+ 2	6,296	+10
Waterworks	584	–18	906	–14	342	+ 6
Sewerage	1,001	+ 6	1,351	+ 6	514	a
Bridges	916	+15	1,312	+17	728	+39
Streets and roads	2,713	+ 8	5,859	+ 6	2,698	+26
Earthwork & waterways	648	+ 2	779	–16	811	–14
Airports	750	– 5	876	–12	635	a
Unclassified	902	+10	975	+10	568	– 8
Federal (incl. above)	1,229	– 7	1,564	–10	1,327	+15
Total—Building	3,606	– 2	6,001	– 6	7,350	–19
Industrial	1,238	–12	1,761	–17	2,716	–35
Mass housing, commercial, public	2,879	+ 1	4,240	a	4,634	– 4
Federal (incl. above)	173	–27	203	–27	348	+ 2

a less than 0.5%

More Firms Compete for Jobs

A RECORD 9,234 contractors took on $100,000 or more of heavy construction contracts in 1957. This is 3% greater than the count of firms doing this much new business in 1956, according to Construction Methods' analysis of contract awards.

The number of these larger firms in the industry rose despite a decline in available new business. The dollar value of contracts in 1957 slipped 7% below 1956's all-time high, and the number of projects dipped 1% under the 1956 total. Moreover, 1957 was the second "recession" during which the number of firms doing $100,000 or more in new business continued to rise. In 1954, dollar value of awards dropped 9%, but the number of contractors in the "$100-000-and-up" bracket rose 2%.

All of the 1957 increase in the number of larger contractors is due to more firms taking on heavy construction other than building. Their number rose 7% to a record high of 5,628. This was the sixth consecutive annual increase in contractors doing this type of work. There were fewer contractors on waterworks and airport jobs, but more had contracts for sewerage, bridge, highway, dam, and other types of heavy construction work.

By contrast, building contractors doing $100,000 or more in new 1957 business decreased to 3,606, a drop of 2% under Construction Methods' count for 1956. This decline was caused by the downturn in industrial building contracts (after hitting a record high in 1956). However, the number of contractors doing other types of building — commercial, public, and mass housing—was up 1% in 1957.

Stiff Competition

The continuing rise in firms doing heavy construction other than building helps explain why competition for new work was stiff and bid prices dropped below engineering estimates by increasingly large margins late in 1957 and early in 1958.

Not only does the increased number of contractors in the $100,000-and-up" class result in more and more firms bidding for new work, but these contractors also are growing larger. As they expand their capacity for taking on additional volume, they want more work to keep their crews together and their machinery working. Contractor investment in machinery is very large; idle machines add substantially to overhead expense.

The number of building contractors dipped in 1957, but the decline of 7% was much less than the 19% drop in dollar volume or the 10% decrease in the number of projects. Lower dollar volume per firm and fewer projects per firm increased competition for building projects. Bids for schools and other public buildings reported by Construction Methods indicate that building contractors trimmed their prices to win new contracts.

Big Firms Get Bigger

Most of the increase in the number of contractors taking on $100,000 or more of new business was among large firms—those doing a volume of $1 million or more. Their number rose 10% in 1957 to a record 3,178, or 282 more firms than in 1956.

By contrast, there was a 3% rise in contractors doing $100,000 to $499,999 in 1957 contracts and a 5% drop in those taking on $500,000 to $999,999.

The 1957 increase in the number of contractors who took on $1 million of new business marks

continued on page 54

600,000 YARDS TO MOVE IN 30 DAYS...

150,000 MOVED IN FIRST 4 DAYS!

"I didn't believe it, but it's true," says R. D. McDougal, Jr., of McDougal-Hartmann Co., in speaking about the performance of his equipment spread operating in Illinois. "For example, our DW15s made 75 trips each in four hours over an 800-foot haul. They averaged 12-13 pay yards a trip. This machine really has the power and balance to keep it from getting hung up."

Mr. McDougal is talking about the performance of four Caterpillar DW15 (Series E) Tractors with No. 428 LOWBOWL Scrapers, part of his fleet of 22 big yellow machines moving sandy clay for a factory site. The machines, including D9 and D8 Tractors, No. 12 Motor Graders and other Cat wheel Tractor-Scrapers, kept going 10 hours a day. In four days 150,000 cu. yd. of earth were moved, one-fourth of a project that was expected to take 30 days!

The Cat DW15 packs 200 HP (maximum output), clocks 37.2 MPH, delivers a maximum rimpull of 27,500 lb. It's fast, maneuverable, tough. Works well with the No. 428 LOWBOWL Scraper (13 cu. yd. struck, 18 heaped), or with the Athey PR15 Rear Dump Trailer (14.1 cu. yd. struck, 22-ton capacity). But if you're like Mr. McDougal, you have to see it to believe it. So call your Caterpillar Dealer. See this fast yellow team in action . . . *right on your own job.*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

HEAVY-DUTY EQUIPMENT
...QUALITY SERVICE...
PARTS YOU CAN TRUST

During construction of vital Interstate Highway section, Campanella and Cardi's 22½-ton Mack dumpers once again proved that they are built to get the tough jobs done, with little or no down time and only routine servicing.

Vital highway links

Maneuverability and ease of handling pay off in the tight spots. On the Division Street project in Pawtucket, R. I., space was at a premium. Spotting, dumping, or traveling over busy city streets, the combination of Mack maneuverability, and the positive traction provided by Mack's exclusive Balanced Bogie with Power Divider, materially speeded up work cycles on this project.

"We finished off the Interstate Highway job in record time, thanks to our Macks." Campanella and Cardi set new records for a job of this type, which included relocating the channel of the Big River, excavating for bridge construction, and hauling in heavy materials.

rushed to completion

"As the trucks go . . . so goes the job." That's what Campanella and Cardi Construction Co. of Providence report. They credit their 55 Mack trucks with maintaining their reputation for record-time contract completion.

They'll tell you that with Macks pacing the job, the hauling-dumping cycle proceeds on-the-double . . . shovels operate at full capacity . . . down time is held to a minimum.

Husky Mack dumpers take the day-in, day-out beatings delivered by the tons of rock and earth dropped from the shovels . . . and keep coming back for more.

Campanella and Cardi will tell you that Mack dependability speeds their entire operation. So will the Mack user nearest you. Get his name from your Mack branch or distributor. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

How Contractors Divided up New Business in 1957 (Reported by Construction Methods)

Type of Work	Firms with $1,000,000 or More in Construction Contracts: Number of Contractors 1957	% Chg. fr '56	Projects 1957	% Chg. fr '56	Contract Value (millions) 1957	% Chg. fr '56	Firms with $500,000–$1,000,000 in Construction Contracts: Number of Contractors 1957	% Chg. fr '56	Projects 1957	% Chg. fr '56	Contract Value (millions) 1957	% Chg. fr '56	Firms with $100,000–$500,000 in Construction Contracts: Number of Contractors 1957	% Chg. fr '56	Projects 1957	% Chg. fr '56	Contract Value (millions) 1957	% Chg. fr '56
TOTAL	3,178	+10	9,301	+ 3	$11,371	– 8	1,771	– 5	3,317	–10	$1,188	– 4	4,285	+ 3	5,431	– 1	$1,087	– 2
Total-Other than Building	1,716	+20	5,763	+11	4,975	+15	965	– 2	2,264	–11	637	– 5	2,947	+ 3	4,031	– 1	684	– 3
Waterworks	222	+ 3	376	0	252	+19	112	–10	160	–19	37	–14	250	–33	370	–23	54	–21
Sewerage	320	+19	483	+10	331	– 1	164	– 6	264	–13	77	+ 3	517	+ 3	604	+13	106	0
Bridges	432	+25	684	+40	597	+49	169	+22	262	+10	69	+19	315	0	366	– 8	62	– 2
Streets and roads	1,009	+25	3,062	+18	2,124	+36	528	+ 2	1,162	– 7	304	– 3	1,176	– 1	1,635	– 3	289	– 3
Earthwork & waterways	323	+ 6	385	–14	733	–14	80	–12	100	–42	33	–28	245	+ 1	294	– 5	45	+ 2
Airports	368	+ 2	453	– 6	524	+ 5	115	– 2	145	–17	56	–13	257	–15	278	– 8	55	–19
Unclassified	317	+14	320	–10	414	–12	127	–16	171	–15	61	–13	458	+17	484	+47	93	+16
Federal (incl. above)	596	+ 8	800	–14	1,144	+17	183	–25	247	+39	87	+45	450	–15	517	–17	96	–16
Total Building	1,462	0	3,548	– 7	6,396	–21	806	– 8	1,053	– 8	551	– 4	1,338	+ 1	1,400	a	403	– 1
Industrial	337	–18	968	–22	2,526	–37	181	–16	224	–21	83	– 7	520	– 4	569	– 7	106	–10
Mass housing, commercial, and public	1,338	+ 5	2,580	a	3,870	– 5	705	– 7	829	– 5	468	– 3	836	+ 2	831	+ 5	297	+ 3
Federal (incl. above)	67	–50	118	–30	321	+ 7	38	– 7	29	–36	14	–44	68	+ 6	56	–15	13	–19

a less than 0.5%

a new peak in the growth of the construction industry's major firms. Since 1950, they increased by 1,401 firms, a thumping 79% rise. In numbers, this increase is about three times the corresponding growth in the small groups.

Most spectacular is the rise in "million-dollar contractors" doing construction other than building. In 1957 their number jumped by 20%; since 1950 their number has soared 140% compared with a 34% rise in all three size groups combined.

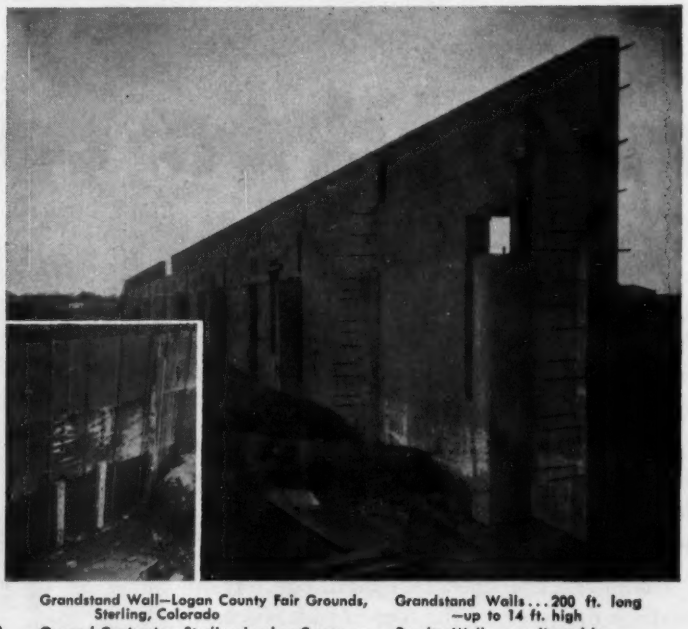
The smaller contractors—those doing $100,000 to $499,999 annually—rose to a record 4,285 in 1957. This is only a modest rise of 107 firms over 1956, but it is 489, or 13%, more than in 1950.

Medium size contractors—doing $500,000 to $999,999—decreased by 104 to 1,771 in 1957. However, their number has risen by 458, or 35%, since 1950.

Contract Awards, page 56

"First-time" results excellent with Gates Systems

And why shouldn't a contractor get excellent results the first time with Gates? The simplicity of Gates Systems allows forms to be erected and stripped up to 50% faster than conventional methods. Using Gates Vertical Rod System, the contractor formed these grandstand walls merely by stacking panels horizontally to the desired height. No hardware was necessary, and bracing and walering were reduced to a minimum.



USE GATES IT'S GALVANIZED

If you would like "first-time" results like this, see your nearby Gates dealer, or write...

Gates & Sons, Inc.

80 South Galapago Street • Denver 23, Colorado

CM 6/58

Grandstand Wall—Logan County Fair Grounds, Sterling, Colorado
General Contractor: Sterling Lumber Company
Architect: Murrin & Kasch—Sterling, Denver, Pueblo, Colorado
Consulting Engineers: Peterson, Norris; Carrillo, Denver, Colorado

Grandstand Walls . . . 200 ft. long —up to 14 ft. high
Results: Walls, complicated by beam sockets, openings, pilasters, and block-outs, were formed straight and true, with typical Gates economy.

Stretch Dollars – Save Manpower with equipment that does more . . .

WORK BULL 303 and 500 LOADER

—REVERSE INSTANTLY FOR FASTER CYCLING
—PERFORM A DOZEN DIFFERENT JOBS

The Model 210 Davis Backhoe on the Work Bull 303 can dig flush by simply moving the mast assembly from center to side.

The Rotary Broom on the Work Bull 303 has 96" swath, 30° left and right hydraulic angle control.

The Work Bull 1001 Multi-Purpose Tractor Loader converts into eight different machines.

POWER MATCHED FOR PROFIT-MAKING PERFORMANCE The Work Bull 303 and 500 Loader rig have been designed to work together as an integrated unit for performance far above anything else in the medium equipment class. With instant reversing (acceleration and direction of travel are controlled by "side-by-side" forward and reverse foot pedals), torque converter, full-time power steering, 5-speed transmission in both directions, plus a 54.5 h. p. engine, you have power, speed, agility all in one package. The 500 Loader has low pivot points for "bull-dozer" type thrust, 43° rollback at ground level for bigger payloads and more breakaway, and telescoping arms for abnormal lifting height.

MANY ATTACHMENTS FOR MULTI-PURPOSE, HEAVY-DUTY JOBS This combination lets you get more production out of one machine because it is easily changed from a 7/8 cubic yard Loader to a Rotary Sweeper, Angle Dozer, Lift Fork, Scarifier, Swinging Crane, or Pick-up Sweeper – right in the field if necessary. **The Davis Backhoe attaches directly to the rig – removes in five minutes for all-around operations.**

LOW PACKAGE PRICE - This combination will cost you less than any other medium-sized, all-purpose rig. And because of its extreme versatility, maneuverability, and high quality, it will make you more money on a wider range of jobs.

OTHER MASSEY-FERGUSON INDUSTRIAL EQUIPMENT includes the Work Bull 1001 Multi-Purpose Tractor Loader (60.3 h. p.), Work Bull 202 (40 h. p.) with integrated Davis Loader-Backhoe, and the Work Bull Fork Lift with 10 easy-to-change attachments.

For information on the complete Massey-Ferguson line ask for Brochure G-4. For specific information on the Work Bull 303 ask for Brochure W-3. *Write Massey-Ferguson Industrial Division, 1009 South West Street, Wichita 13N, Kansas.*

MASSEY-FERGUSON
INDUSTRIAL DIVISION

"Standard of Quality"

Only "NEWTYPE" SUCTION and DISCHARGE HOSE

has the black cover with green spiral stripe . . . positive identification of the "Standard of Quality" hose that cannot kink, buckle or collapse . . . that keeps your pumps operating at maximum capacity, *always.* Pumping operations cost *less* because this hose stays on the job *longer,* providing your best possible insurance against shutdowns for repairs and replacements. Style N-135. Made in sizes 1¼" to 4" I.D., in maximum lengths of 50 feet.

"If it's GOODALL, it MUST be GOOD!"

Contact Our Nearest Branch for Details and Prices

Standard of Quality—Since 1870

HOSE • BELTING • FOOTWEAR • CLOTHING AND OTHER INDUSTRIAL RUBBER PRODUCTS

GOODALL *Rubber Company*

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

BRANCHES AND DISTRIBUTORS THROUGHOUT THE UNITED STATES. IN CANADA: GOODALL RUBBER CO. OF CANADA LTD., TORONTO.

SOME BIG CONTRACT AWARDS OF THE MONTH

United Engineers Constructors, Inc., 1401 Arch St., Phila., Pa. Power plant and required dredging Hamilton Twp., Duck Island, Trenton, N. J. Public Service Electric & Gas Co., 80 Park Place, Newark, N. J. $72,500,000.

Girdler Construction Division, Chemetron Corp., 224 E. Broadway, Louisville, Ky. Design and construct plant to supply hydrogen for high energy fuel at Lake Ontario Ordnance Works for Department of Air Force, Model City, N. Y., for Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y. $45,000,000.

Gust K. Newburg Constr. Co., Box 791, Terminal Annex, Los Angeles, Calif. An eight-story hall of administration bldg., Los Angeles, Calif. Los Angeles Co. Bd. Retirement, Los Angeles Co. Hall of Records, Los Angeles, Calif. $20,467,000.

James Stewart Co., Employers Ins. Bldg., Dallas, Texas. A four-story, 1,000,000-sq ft. masonry trade mart, Dallas, Texas. Trammell Crow & Assocs., 425 S. Field St., Dallas, Texas, $18,000,000.

Albert Gersten & Assoc., 404 N. Rosbury Dr., Beverly Hills, Calif. A 1,100-unit Armed Services housing, U. S. Marine Corp. Auxiliary Air Station, Beaufort, S. C. Dist. P. Wks. Office Bldg. No. 13, U. S. Naval Base, Charleston, S. C. $16,586,284.

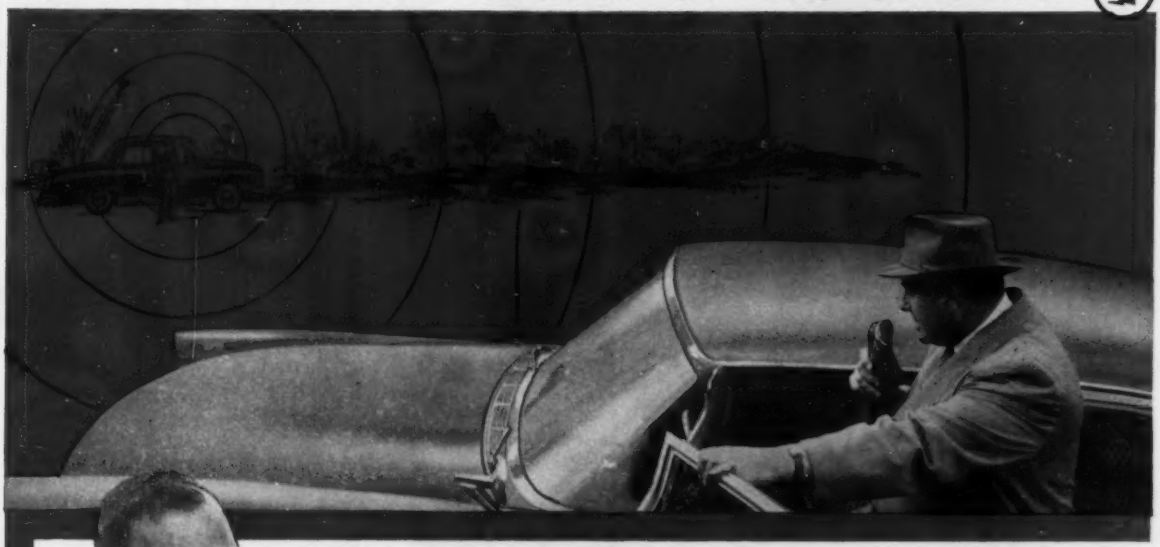
Diesel Constr. Co., 24 W. 48th St. New York, N. Y. 14-story, 200,000-sq ft. office, West Broadway, Park Pl., Greenwich and Barclay Sts., New York, N. Y. Erwin S. Wolfson, 24 W. 48th St., New York, N. Y. $14,000,000.

H. L. Coble Constr. Co., 1705 Battleground Ave., Greensboro, N. C. Construct 849 units, Armed Services housing, Marine Corps Air Station, Cherry Point, N. C. Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Bldg. No. 26, Norfolk, Va. $12,829,300.

Terminal Construction Corp., P. O. Box 175, WoodRidge, N. J. 702-unit Capehart housing and

continued on page 62

RCA RADIO...FIRST CHOICE OF THE LEADERS



"RCA 2-Way Radio meets our vital need for car-to-car contact in road building!"

Says Mr. James D. Morrissey, Morrissey Inc., Prominent Highway Contractors of Philadelphia, Pa.

The importance of all vehicle operators hearing all messages and being able to talk to one another led the big Morrissey road construction firm in Philadelphia to select RCA Carfone Radio for its trucks and supervisor's cars. Today, the RCA 2-Way Radio system, with two Mobile Relay Repeater stations installed on a high antenna tower, provides excellent car-to-car coverage of the territory served. The assistance of all can thus be enlisted, and individually every man is more efficient. It makes the entire operation much more flexible and assures better control at all times.

The quality of RCA Radio equipment here and in many other successful construction business applications is the reason it is preferred. Look for these outstanding new features: RCA "Quiet Channel" to cut out channel interference; "split channel" readiness; new Minitrol miniature microphone, controls and speaker combination to increase dispatcher efficiency.

It's important for you to know how RCA 2-Way Radio can assure greatest satisfaction, lowest maintenance, actually save you thousands of dollars. And you can find out today without obligation. Just mail the handy coupon.

RCA

Tmk(s) ®

RADIO CORPORATION of AMERICA

COMMUNICATIONS PRODUCTS
CAMDEN, N.J.

Radio Corporation of America
Communications Products
Dept. G-203, Building 15-1, Camden, N.J.
In Canada: RCA VICTOR Company Limited, Montreal

☐ Please send me free brochure "Highway Contractor Eliminates Costly Delays with Two-Way Radio."

NAME _____ TITLE _____
PLEASE PRINT

COMPANY _____

STREET _____ COUNTY _____

CITY _____ ZONE _____ STATE _____

☐ Have RCA Communications specialist make a free RADIO SURVEY of my business.

One FORD Tractor Grew Into...a Fleet of Equipment

ALABAMA LANDSCAPING, DITCHING CONTRACTOR:

"FORD HAS NETTED ME $75,000 IN 5 YEARS"

Hardin Hughes of Hughes Landscaping and Ditching Service started business as a landscaper in Decatur, Ala., 10 years ago with one Ford tractor and a rear blade. Today he owns six Ford tractors, three backhoes, a loader, three Ford trucks and a long list of versatile tractor attachments. He's expanded into the digging business as well, and now employs six to eight men full time.

Mr. Hughes is so enthusiastic about his Ford tractors he frequently volunteers to put on demonstrations for his dealer. "I'm glad for the chance," he says. "I figure Ford has netted me $75,000 in the last five years. My gross will hit over $50,000 this year, and my business is still growing just as fast as I can handle it."

Listen to what Mr. Hughes has to say about Ford in three other areas vital to his business:

MAINTENANCE COSTS. "My repair costs—or the lack of them—have been amazing. This tractor here has run two years with no maintenance at all except one sheared bolt, and still purrs like a kitten. It doesn't use a drop of oil. Three other tractors—one with 628 work hours, one with 1395 hours and one with 1482 hours—keep right on humming like they'll never stop. My two newer Fords are giving me everything I expected of them."

FORD TRACTOR OPERATION. "One of the biggest things to us is maneuverability. We do a lot of inside work and a lot of mud work. Our Fords operate where other equipment can't even get in. I figure we outmaneuver other tractors by ⅓ to ½. You just can't beat Ford for all-around work."

DEALER SERVICE. "The service from my Ford dealer is 100% perfect. The few times I've needed him, he's come out the minute I needed him—even at night and no matter where we were working. I couldn't ask for anything more."

MORE MONEY FOR *YOU*. Ford tractors and equipment can help *your* business, too—whether your main concern is expansion or better profits from current volume. Your nearby dealer is now showing a whole new line of Ford gasoline, diesel and LP-Gas models featuring traditional Ford economy plus such options as power steering, 12-speed auxiliary transmission and power-adjusted wheels. See him today, or write to Industrial Sales Department, Tractor and Implement Division, Ford Motor Company, Birmingham, Mich.

YOU SEE MORE
FORDS
BECAUSE THEY SAVE MORE MONEY!

not even king size boulders stopped this Manitowoc!

Huge boulders . . . too big to pass through the dipper . . . didn't stop this Manitowoc 2½-yd. Model 3500 shovel from loading out an average of 1200 to 1300 yds. of abrasive granite every 7½ hour shift. Goodfellow Brothers of Wenatchee, Washington used two of the Model 3500 rigs for handling rock on a Washington State Highway project. This was a rush job . . . moving over 160,000 yards of rock alone in four month's time.

This rock was hard to blast which resulted in the huge, hard-to-handle boulders. However, the Model 3500 shovels have the power, speed and capacity to keep haul units moving in a steady stream from the job area. Simple, balanced design throughout delivers more horsepower to the dipper . . . there's no wasted power. The entire machine has only 14 gears and pinions and only working gears turn . . . a power-saving feature found *exclusively* on Manitowoc shovels and cranes. A massive, one-piece carbody mounted on long, wide-spread crawlers provides greater stability. Many other features give you advantages to bid lower . . . make more money on any job.

Your Manitowoc distributor will show you why Manitowoc beats them all for more profitable, powerful performance . . . call him now!

Manitowoc

MANITOWOC ENGINEERING CORP.

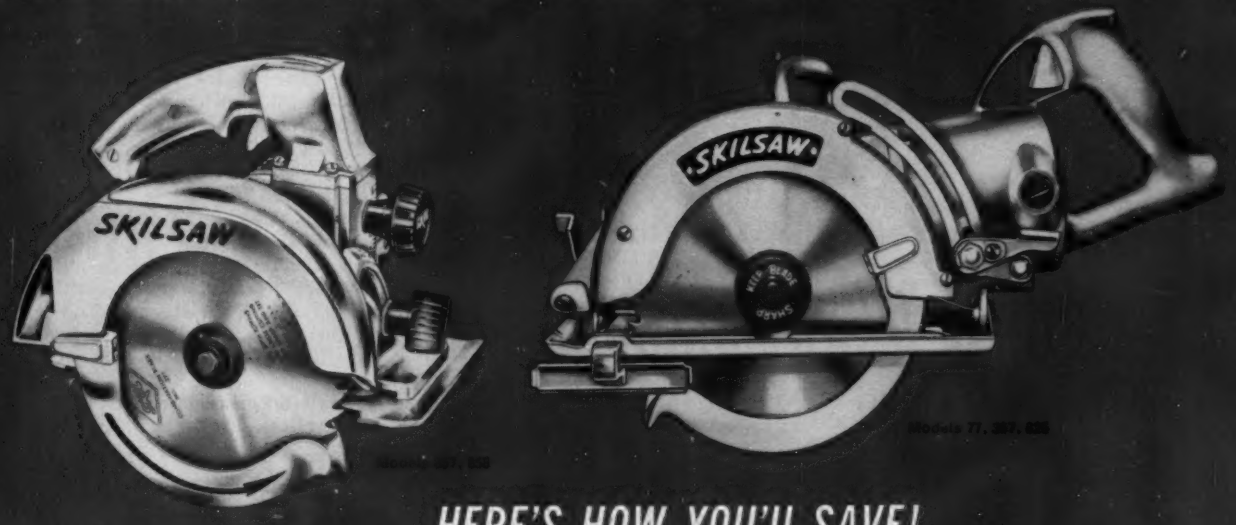
MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
20 TON - 100 TON	1-YD. - 5½-YD.	1-YD. - 6-YD.	1-YD. - 2½-YD.

SKIL announces a spectacular

Trade-in Sale!

your old saw is worth $17.50 on any one of these five popular, new SKIL SAWS



HERE'S HOW YOU'll SAVE!

New Model 557 (7¼")	$99.50	New Model 77 (7¼")	$115.00
Trade-in Credit	17.50	Trade-in Credit	17.50
YOU PAY ONLY	$82.00	YOU PAY ONLY	$ 97.50

- Now is the time to act—and save as you have never been able to before! It's the BIG Sale of the year and it covers the most popular SKIL Saws on the market!
- For a limited time only—this offer ends July 31st—we will pay you $17.50 for your old saw when you trade it in on any one of these outstanding SKIL Saws.
- This is the deal you have been waiting for—you can't beat it anywhere. Get to your SKIL Saw distributor today—clip this ad out to remind you—and take your old saw with you.

You'll walk away with a brand new SKIL Saw—the saw that carpenters and builders say is the best on the market!

Trade-in offer also applies to these 3 Skil Saws!

This offer also applies to the Model 367 (6½"), which regularly sells for $95.00. With your old saw you can buy it now for only $77.50. Also included is the amazing Model 825 (8¼") which sells for $135. With your trade-in you can own this 8¼" SKIL Saw for only $117.50. Another 8¼" saw—the popular Model 858, a well-known $115 seller is reduced to $97.50 with your old saw.

SEE YOUR SKIL DISTRIBUTOR TODAY AND GET IN ON THIS SENSATIONAL SALE!

SKIL

Made only by SKIL Corporation, manufacturer of famous SKIL and SKILSAW products, 5033 Elston Avenue, Chicago 30, Illinois

Rome Master Disk Plowing Harrow takes a deep cut, turning material over so that excess moisture can evaporate.

BUILD *ideal* SUBBASE

for roads, airports and dams

For faster, more efficient pulverizing, aerating, blending and stabilizing of subbase materials put a Rome Disk Plowing Harrow on your job! Here's the weight and design to cut deep — pulverizing action to thoroughly mix the subbase and return material to its original position — free from ruts or windrows — the ruggedness to match the power of the largest crawlers.

Rome Disk Plowing Harrows are ruggedly-built for heavy-duty construction work. Massive main frames hold gangs level and make them penetrate uniformly. Super-strong bearings — your choice of Timken Roller or White Hard Iron — hold blades rigidly in position, provide easy rolling action. Notched blades are the finest made to withstand the punishment of rocks and stumps. Rome Disk Plowing Harrows are available in a variety of widths, in both offset and Rome Master Tandem. You have your choice of mechanical, hydraulic or cable control angling methods as well as wheel-type offsets in certain sizes.

Get all the facts at your Rome-Caterpillar Dealers.

ROME PLOW COMPANY, Cedartown, Georgia

YOUR **ROME** DEALER IS YOUR **CATERPILLAR** DEALER

CONTRACTS AWARDED . . .
continued

utilities, Fort Dix, N. J. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. $11,574,252.

Caye Construction Co., Inc., 356 Fulton St., Brooklyn, N.Y. Grandstand at Aqueduct track, Ozone Park, N.Y. for the Great New York Association, c/o Aqueduct Race Track, Ozone Park, N.Y. $12,930,550.

S. N. Nielson Co., 3059 N. Augusta Blvd., Chicago, Ill. Six apartment buildings, 855 units, community center building, management maintenance building, boiler plant, in Rockwell Gardens, bounded by Madison, Van Buren, Western and Rockwell Sts., Chicago, Ill. Chicago Housing Authority, 608 S. Dearborn St., Chicago, Ill. $10,339,000.

Stearns-Roger Mfg. Co., 665 Bannock, Denver, Colo. Design and construct copper reducing plant, Hayden, Ariz. for Kennecott Copper Co., Kearns Bldg., Salt Lake City, Utah. $10,000,000.

J. J. Fritch Construction Co., 6834 Harry Hines Blvd., Dallas, Tex. 600 family housing units at Lincoln Air Force Base, Lincoln, Neb. for U. S. Eng., 1709 Jackson, Omaha, Neb. $9,481,300.

Farnsworth & Chambers, Inc., 3601 Brock, Houston, Texas and **Guy H. James Construction Co.,** 4901 N. Sewell, Oklahoma City, Okla. Lewis Smith Dam, including main dam, concrete power house, tunnels, etc., on Warrior River, Walker-Cullman Counties, Alabama for Alabama Power Co., Ala. Power Bldg., Birmingham, Ala. $8,000,000.

M. DeMattio Construction Co., 200 Hancock St., Quincy, Mass. Section "P" J. F. Fitzgerald Expressway, Union Park St. to Mass Ave., Boston for the Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. $7,089,000.

Turner Construction Co., 150 E. 42nd St., New York 17, N.Y. A ten-story limestone, brick, metal and porcelain enamel walls office building at St. James Ave., Boston, Mass. for Liberty Mutual Insurance Co., 175 Berkeley St., Boston, Mass. $7,000,000.

LOOK AT THE No. 977 LOAD OVER 18 TONS IN 4 MINUTES— ALL DAY LONG!

This is a road construction job between Durham and Chapel Hill, N. C. Loading sand for Nello L. Teer Co. is this Caterpillar No. 977 Traxcavator, averaging 18.4 tons per load. Its load time per truck is 4 minutes, timed right on the job. Supt. R. G. Moore states flatly: "Best truck loader there is."

A few reasons: the No. 977's track roller frames are extended for better stability; its 2¼ cu. yd. bucket tilts back 40 degrees at ground level, giving leverage at the cutting edge and preventing spillage; operator sits high and comfortable, out of the dust, with all controls conveniently at hand.

New with the No. 977: a Side Dump Bucket attachment (2¼ cu. yd.) that dumps to the left as well as forward and is directly interchangeable (same pins, bolts, nuts) with the standard bucket.

But don't just look at pictures—look at the dirt fly on your own job when a Cat No. 977 Traxcavator digs in. Call your Caterpillar Dealer right now and set up an eye-opening, truck-filling demonstration.

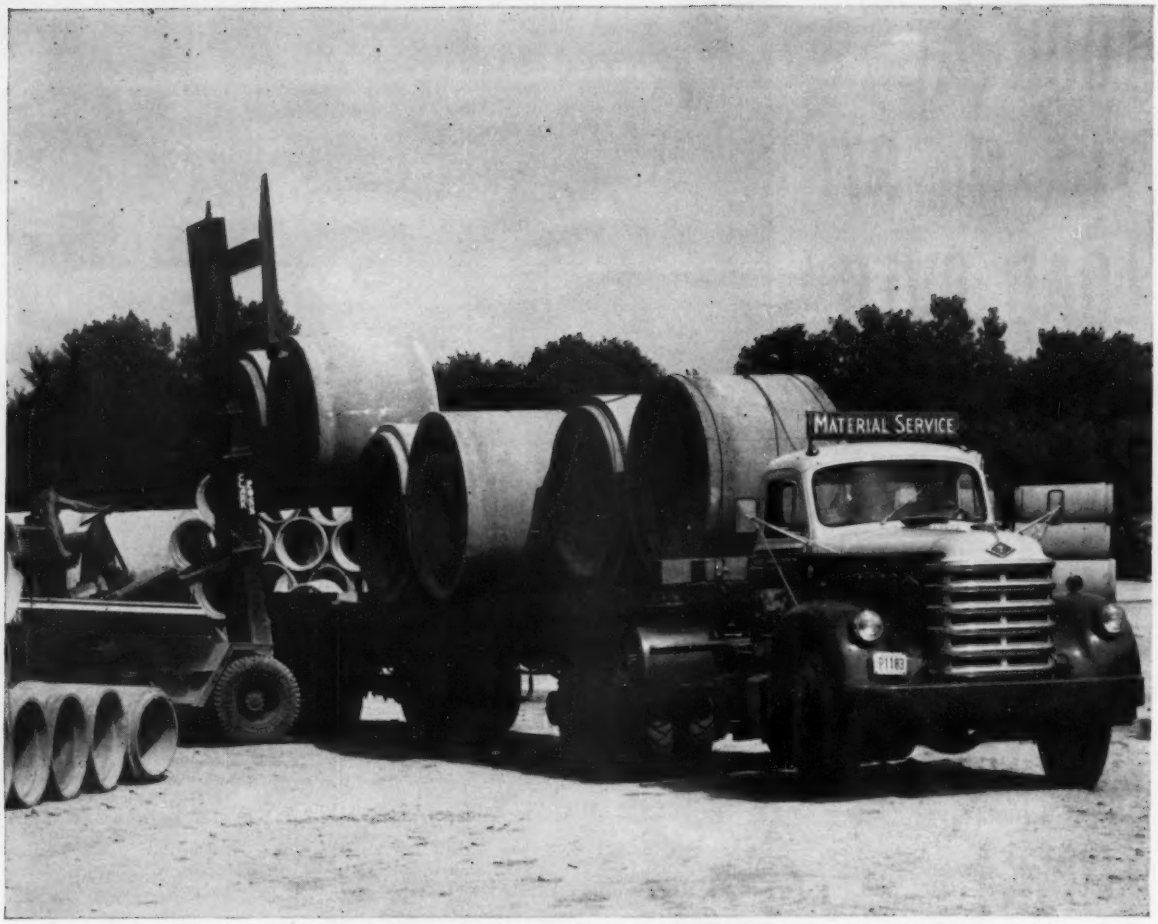
Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

LOOK FOR YOUR CATERPILLAR DEALER IN THE YELLOW PAGES

FOR FAST LOADING



Geared by FULLER...

New Diamond T's for Material Service Corporation

Hauling heavy loads into sandy, muddy construction sites is daily routine for Material Service Corporation. This well-known Chicago area supplier of construction materials and concrete products knows what this work requires of trucks: *heavy-duty components throughout!*

That's why Material Service specified Fuller 5-A-65 Transmissions in the recent purchase of Diamond T Model 830-32M Trucks.

Fuller Transmissions are designed for long and satisfactory service . . . for heavy loads, steep grades and the stress of constant shifting. Specify Fuller Transmissions wherever the "going's tough" . . . to deliver maximum horsepower through the *right* gear ratios . . . to speed work cycles at lowest cost! Get the facts from your truck manufacturer or truck dealer . . . or write Fuller Manufacturing Company for details.

Material Service Corporation's new Diamond T 830-32M's feature Fuller 5-A-65 Transmissions and Eaton-Hendrickson Tandems. Concrete pipe being loaded is typical of loads carried by this well-known construction material supplier.

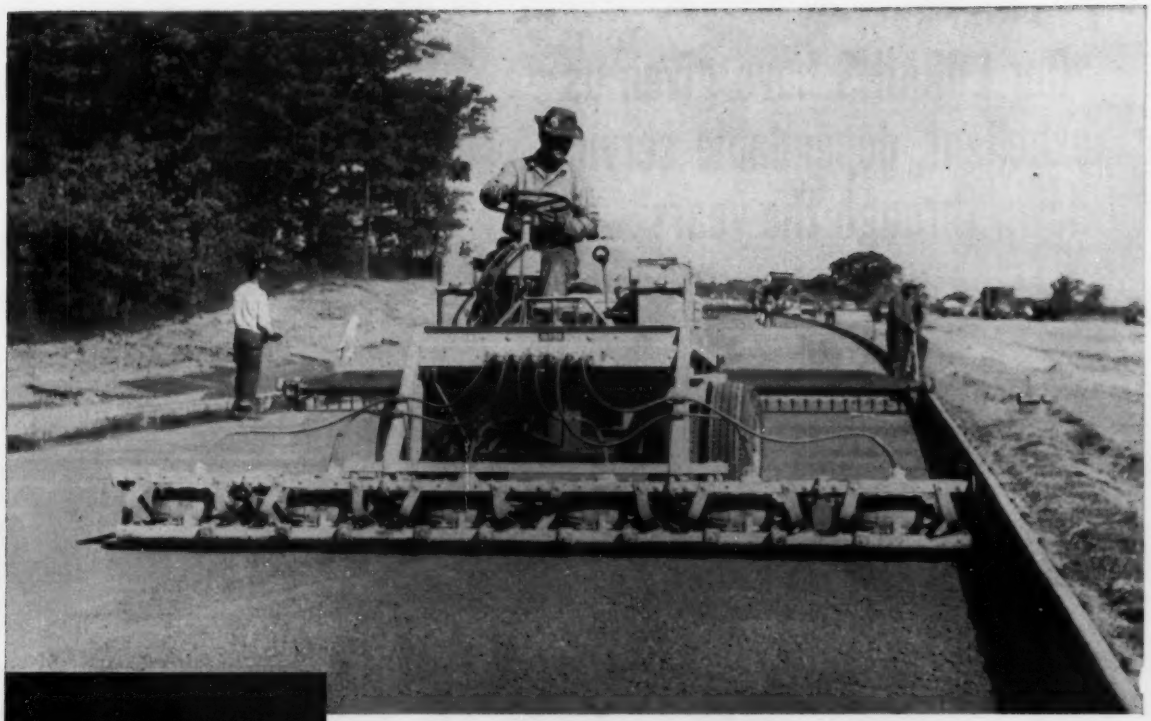
FULLER

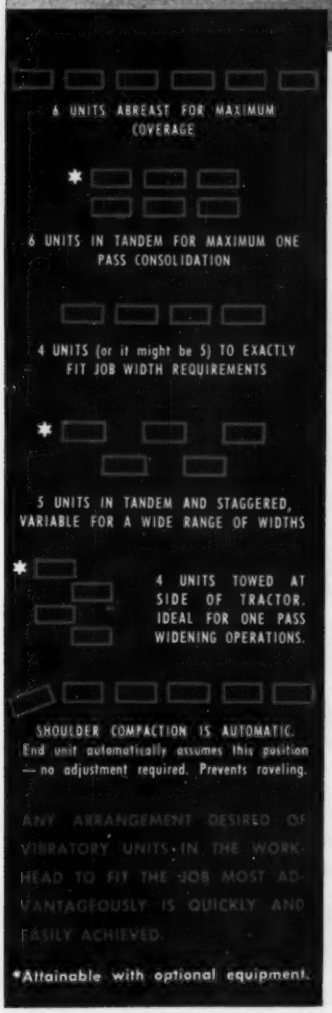
Fuller

TRANSMISSIONS

FULLER MANUFACTURING CO. Transmission Division • Kalamazoo, Mich.

Unit Drop Forge Div., Milwaukee 1, Wis. • Shuler Axle Co., Louisville, Ky. (Subsidiary) • Sales & Service, All Products, West. Dist. Branch, Oakland 6, Cal. and Southwest Dist. Office, Tulsa 3, Okla.

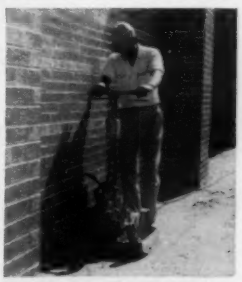



6 UNITS ABREAST FOR MAXIMUM COVERAGE
6 UNITS IN TANDEM FOR MAXIMUM ONE PASS CONSOLIDATION
4 UNITS (or it might be 5) TO EXACTLY FIT JOB WIDTH REQUIREMENTS
5 UNITS IN TANDEM AND STAGGERED, VARIABLE FOR A WIDE RANGE OF WIDTHS
4 UNITS TOWED AT SIDE OF TRACTOR. IDEAL FOR ONE PASS WIDENING OPERATIONS.
SHOULDER COMPACTION IS AUTOMATIC. End unit automatically assumes this position — no adjustment required. Prevents raveling.
ANY ARRANGEMENT DESIRED OF VIBRATORY UNITS IN THE WORKHEAD TO FIT THE JOB MOST ADVANTAGEOUSLY IS QUICKLY AND EASILY ACHIEVED.
*Attainable with optional equipment.

JACKSON COMPACTORS

PROVIDE TOP COMPACTION PERFORMANCE, UNMATCHED JOB ADAPTABILITY!

A combination which accounts for the fact that more of these machines have been used on major paving projects than all other pan type compactors combined . . . and their popularity continues to increase. Tremendously powerful vibratory action provides 100% of specified density of any material normally used in macadam base or sub-base courses in the shortest possible time. Each unit in the workhead supplies 4200 THREE-TON BLOWS PER MINUTE. And they are FAR MORE VERSATILE THAN ANY OTHER COMPACTOR, ideally adjustable to each and every job requirement. Coverage is what you want it to be, up to 13′, 3″. Any arrangement of the compactor units, as indicated, is quickly attainable. With this machine you can compact areas others can't touch, a factor that eliminates lost motion and saves a great deal of time and money. And, of course, it is equally effective on all types of granular soil fills and similar projects. By all means inspect it at your Jackson distributor.



Any of the compacting units in the workhead can be fitted with operating handle and used exactly like the nationally renowned Jackson manually guided Compactors. Perfect for getting into spots others can't touch. With twin hookup of two units one man will compact 1,200 sq. yds. in 6″ layers per hour.

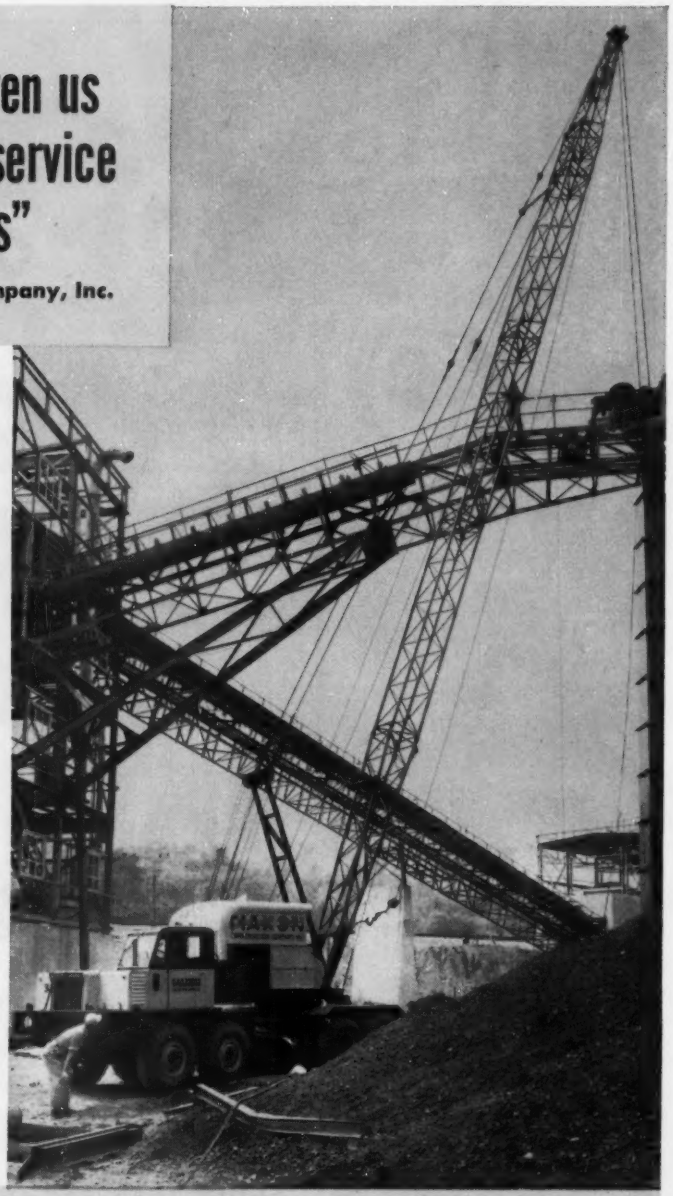
FOR SALE OR RENT AT YOUR JACKSON DISTRIBUTOR . . . name and descriptive literature sent on request

JACKSON VIBRATORS, INC.

LUDINGTON • MICHIGAN

"Our LORAINS have given us excellent, dependable service down through the years"

Maxon Construction Company, Inc.



43 LORAINS

purchased by Maxon Construction Company, Inc. of Dayton, Ohio, is the reason for the above statement by Maxon's Vice President C. L. Ohl.

Maxon has purchased Lorains for years, of many different sizes and types, on crawlers and rubber tires, as cranes and as excavators. Their latest is a 35-ton Moto-Crane, model MC-530W, shown erecting a coal conveyor at the Dayton Power and Light Company.

This is the crane that has the reputation of setting the pace on any construction job. It has that *extra* workability in those ranges *where the work is done.* It can carry that *extra* length of boom. It will move in quickly and travel with those *extra* heavy loads.

It has too many features to list them all here. Read about just three Lorain exclusives below. Then ask your Thew-Lorain Distributor to show you all the others. And check, too, on his on-the-spot parts and service facilities that are such a plus value when you buy a Lorain.

1 "SHEAR-BALL" TURNTABLE MOUNTING

for greater capacities

Develops greater capacities. Vertical, horizontal and radial loads and thrusts are carried by over 60 hardened steel balls. Like a huge, sealed ball bearing. It revolves freely and smoothly regardless of load. In use for 8 years.

2 LIGHTER, STRONGER SQUARE-TUBULAR-CHORD BOOM

for greater capacities

Main chords are sealed, square-section tubes, joined with continuous round tubular lacing. This exclusive boom design is lighter, stronger — gives greater capacities, permits longer reaches.

3 "8 x 4" ROCKER BEAM CARRIER

for greater capacities

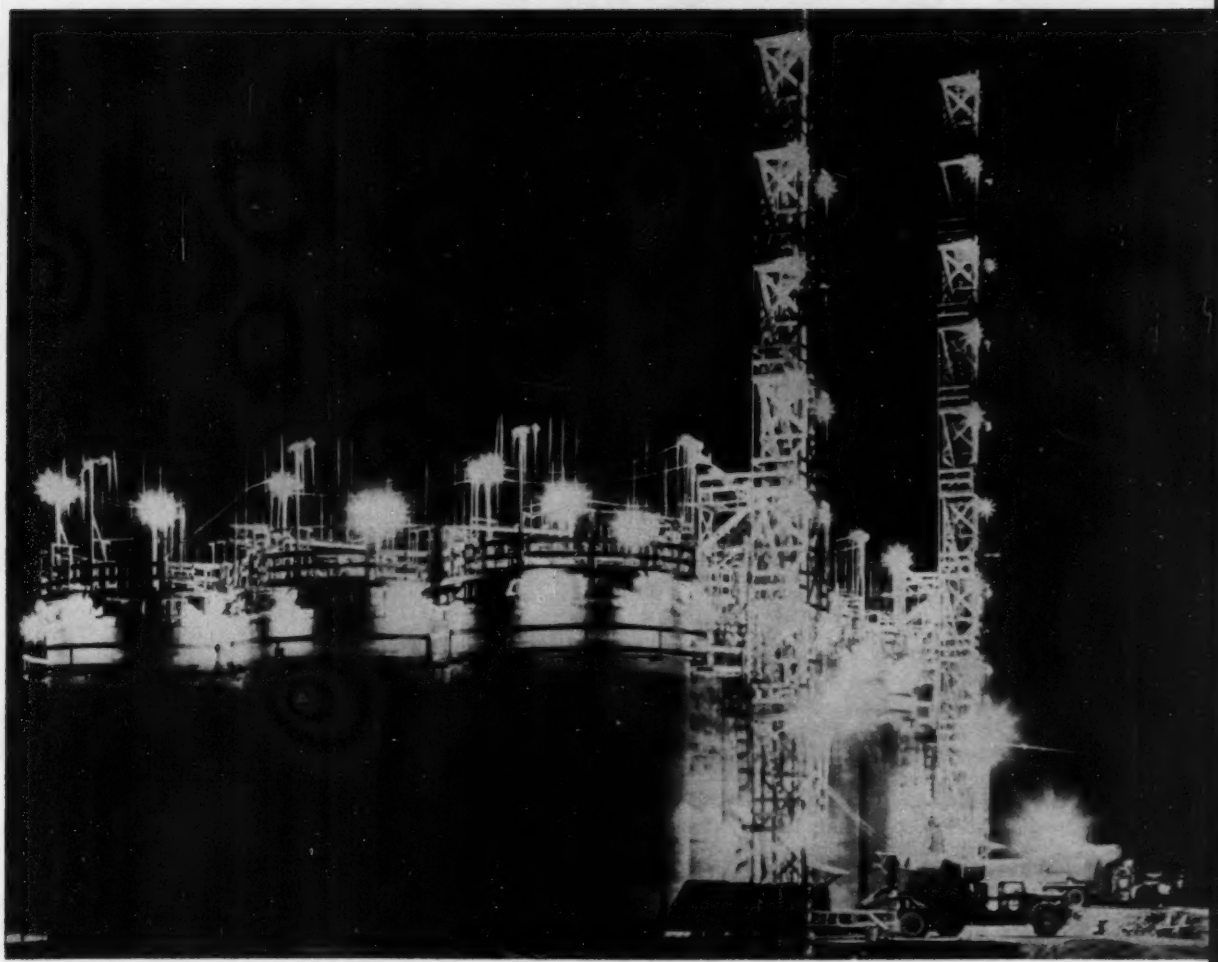
The optional "8 x 4" carrier has two front axles, doubling the front axle carrying capacity. Rocker beam front axle bogie further increases lifting capacities "on-rubber," without outriggers.

When you see your Thew-Lorain Distributor, ask him about the many other features that have been the reason why Maxon Construction Co. has specified and purchased Lorain equipment 43 times.

THE THEW SHOVEL CO., LORAIN, OHIO, U. S. A.

RELIABILITY IN ACTION THEW LORAIN®

PICTURE OF THE MONTH



'Round-the-Clock Construction

McDonald Engineering Co. of Chicago placed 6,800 yd of concrete in a continuous 168-hr pour to complete 18 cement storage silos for the Lime Kiln, Md., plant of Alpha Portland Cement Co. Transit-mix trucks discharged concrete at the two hoist towers which lifted it to the working level for delivery by concrete buggies. Slip forms advanced upward at the rate of 8 in. per hr. The 118-ft-high silos are 29 ft in diameter and will hold a total of 300,000 barrels of cement.

There's a Barber-Greene ditcher to speed your jobs . . . to cut your costs

The two most advanced ditchers on the market. Left: Model 774 with wheel. Right: Model 784 with vertical boom.

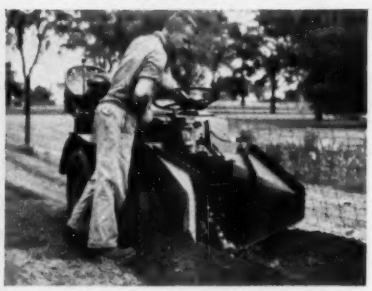
Two machines in one. The same chassis can be used with wheel for cross-country digging where speed is important or with vertical boom for city work where tight quarters and frequent obstructions are encountered.

The Model 774 Wheel Ditcher digs to 66″ deep, 30″ wide. Model 784 Vertical Boom Ditcher cuts to 7′ deep, 24″ wide. Both machines offer exclusive dual-range Hydra-Crowd for infinitely variable digging speeds to 31′ per minute, hydraulic controls, hinged connector between chassis and boom that eliminates twist and tilt, all-hydraulic spoil conveyor, automatic overload protection, new crawlers, and many other years-ahead advantages.

Crowding speed independent of wheel or bucket line speed. Can be changed instantly without stopping machine. Conveyor speeds infinitely variable—instant reverse.

House services. Model 705-B Runabout digs to 48″ deep or more, 10½″ wide. Favorite among utilities for house services. Vertical boom digs up to obstructions, leaves no ramp. Hydra-Crowd gives infinitely variable digging speeds. 15 m.p.h. travel.

Scattered jobs. Model 711 digs to 5′ deep and 18″ wide. 45 m.p.h. travel speed minimizes between-job time. One-man operation. Hydra-Crowd assures instant selection of correct crowding speed for every digging condition. Convenient operator's cab.



Narrow trenching. The Model 702 is a remarkably low-cost unit that digs to 5″ wide, 40″ deep. Ideal for cable, conduit, small pipe. Highly mobile. Varidraulic drive gives fingertip control of crowding speeds from 0 to 20′ per min. Exceptionally rugged.

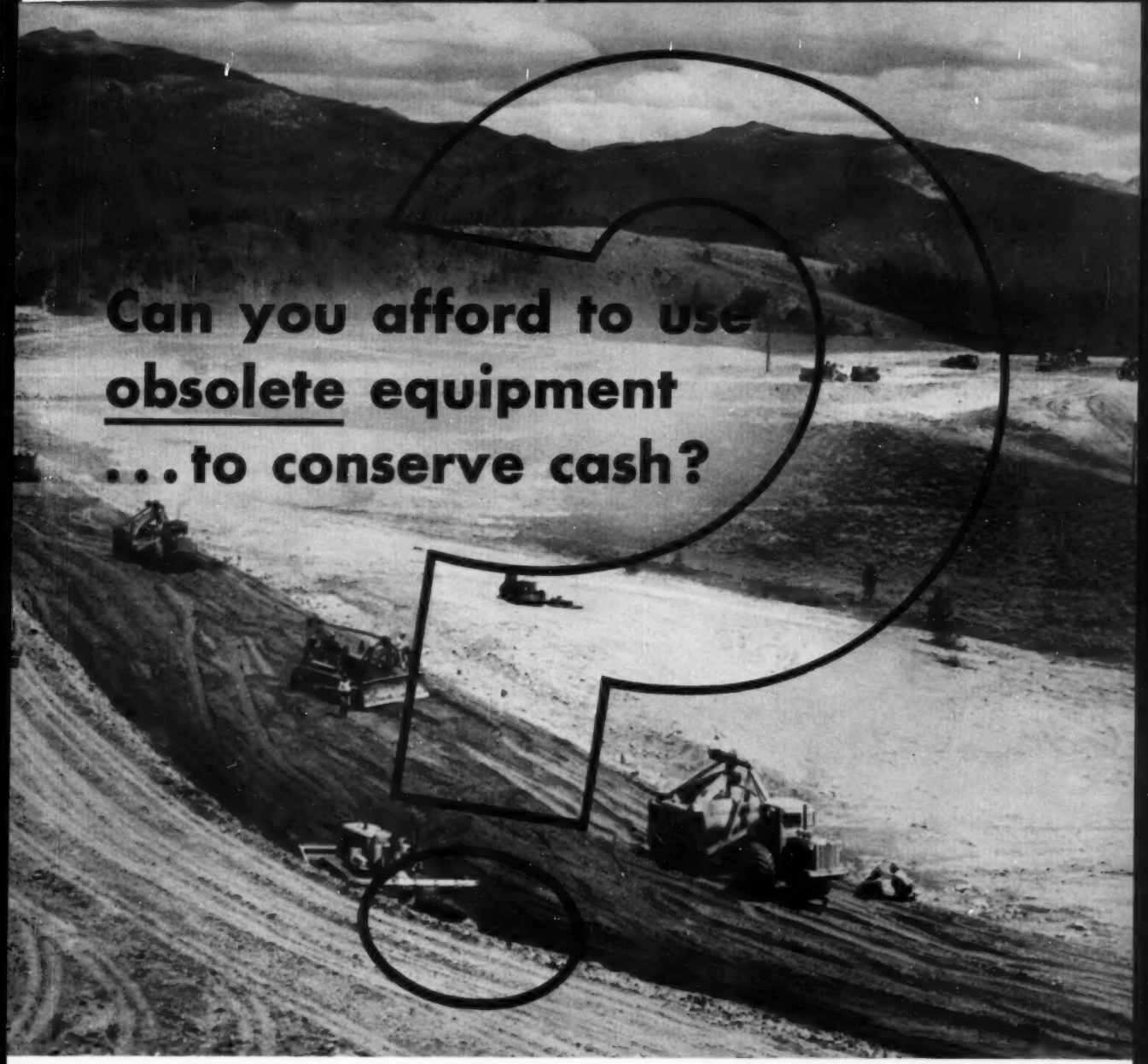
58-7-D

Write for information on all ditchers in the Barber-Greene line of advanced design.

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT



Can you afford to use obsolete equipment ...to conserve cash?

When you split your fleet into working units, do you have uniform, top-production efficiency from each unit? . . . or do you have a few slow-moving tractors and scrapers that can't keep pace with your newer machines? Do you know what these production lags cost you in yardage . . . and profits?

When skies clear after a bad-weather break, and you line up your fleet to move pay-dirt, do your "old-timers" fail to deliver just when you need them most? Have you figured how much this costs in lost yardage? . . . in idle manpower? . . . in shrinking profits?

Every production tool has its "point-of-no-return." When it becomes subject to frequent repair . . . or if its speed is too slow to keep up with companion equipment . . . it is time to check its earning value. It is time, in fact, to trade it in on a new, fast, higher-production tool that can cut your costs. And *now* is a good time to trade. Use your old machine for down payment. The increased production from a new machine, added to your savings in repair of an old machine, can quickly retire the obligation . . . help to conserve cash . . . increase your profit margin.

Why not see your nearby LeTourneau-Westinghouse Distributor . . . get from him the latest facts on how fast, modern L-W equipment will soon pay for itself on your spread. It is possible that you may not even have to disturb your cash reserve in order to capitalize on bigger future profits. Certainly, it will cost you nothing to find out!

Please turn the page . . .

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Please turn the page . . .

Top trade-in

...at your LeTourneau-

To move big yardages, fast...

335-hp, 31.7-mph B Tournapull®

with 27-yd Fullpak® Scraper

Low, wide bowl loads faster... boils better... fills all corners ... heaps low-void payloads. Electric controls assure top operating efficiency in any weather, minimize downtime and maintenance. Electric power-steer makes 90° turns, enables big machines to "duck-walk" out of muck and mud, and work in narrow places. L-W power-transfer differential helps keep traction on solid footing, prevents stall, maintains steady speed in toughest working conditions. Available with 335-hp Cummins diesel and Allison torque converter, or choice of 300-hp Cummins or GM diesels with step-gear transmission. *Ask for a demonstration!*

"Standard of the industry"

210-hp, 29.9-mph C Tournapull

with 18-yd Fullpak Scraper

The original C Tournapull introduced the 2-wheel prime-mover, and revolutionized earthmoving. Since those pioneer days, the C 'Pull† has been constantly improved. It is still the standard by which all other scrapers are compared. Today's 18-yard "C" is big enough to work profitably on big production, yet its ownership-operating cost is so low you can use it to advantage on one-man jobs. Available with 210-hp GM or 200-hp Cummins diesel engines, with step-gear transmission, or optional L-W power-shift torque converter. Dependable electric controls. *Trade in an old scraper on a new "C". Ask for a demonstration!*

Load biggest scrapers in seconds

with 420-hp, L-W Twin-C† Tractor

...cut costly tandem pushing

Want to load your biggest scrapers, *fast*... at *less cost*? Twin-C, with its 40 tons tractive weight, 4-wheel synchronized drive, and power-transfer differentials, develops 64,500 lb drawbar pull, attains forward speeds to 20 mph. It eliminates the need for tandem pushers, gives you the economy of one-man machine operation. With electric-steer, it maneuvers fast, makes 60° turns right or left, lines up quickly for direct push. Big, wide-base tires "hang-on" in soft footing, up steep grades. If you operate *big* scrapers, get the facts on how this powerful Twin-C tractor can help boost production and increase your profits!

Speed-up your tractor work...

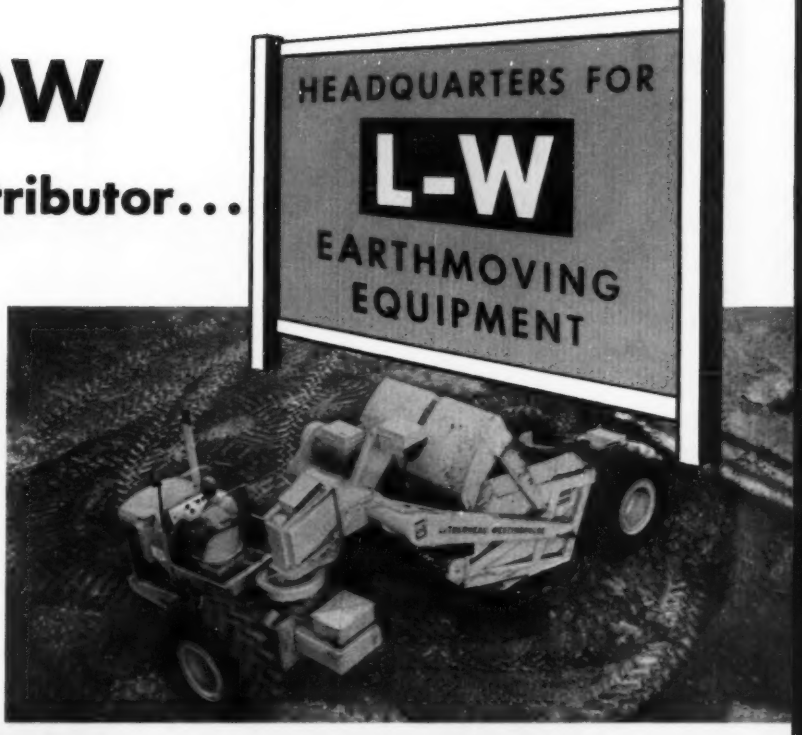
fast, 210-hp C Tournatractor®

can save you time and money!

On work where wide travel range is important... leveling scattered fill, towing compactors and "part-time" scrapers, cutting drainage ditches, stockpiling, maintaining haul roads, push-loading, doing dozens of chores over a wide work area... Tournatractor can save you time and money. And it travels job-to-job at speeds to 17.2 mph, over highways and cross-country, without the aid of truck-and-trailer. It will pay you to balance your tractor fleet. Use your big crawlers on short-haul pushing and dozing... use fast, rubber-tired C Tournatractor for scattered odd-job assignments, clean-up, and finishing. *Ask for demonstration!*

values NOW

Westinghouse Distributor...



Your old machines *will never be worth more* than they are today! And they may be costing you money in repairs and availability. The extra production you can get with new machines — every hour, every day — can mean more favorable bids, steadier work, lower maintenance, higher profits. To get most for your money, invest *now* in the modern, efficient L-W equipment shown here.

Cut costs on scattered jobs
with "Handyman" D Tournapull
...138 hp, 29.5 mph, 9-yd capacity

Fleet owners find this multi-purpose "D" profitable for odd jobs and close-quarter work, where big machines waste time and run up costs. Works alone or in fleets, self-loads or can be push-loaded. Makes 180° turns in 24'3" . . . eliminates need for turn-around areas. "D" is used universally for clean-up, for building driveways, leveling home sites, terracing, ditching, completing many types of small contracts. Powered by 138-hp GM diesel, with step-gear transmission and power-transfer differential. Instant, electric controls. Roadable anywhere without permit. Now is a good time to talk "deal" on a "D". *Ask for demonstration!*

For low-cost, off-road hauling
. . . L-W Tournapull Rear-Dumps
in 11, 22, and 35-ton capacities

Wide bowl, low rear-entry, makes loading easier, *faster*. Machines make continuous U-turns in less space than their own length . . . in about ⅔ their length when in dump position. This saves time positioning at shovel . . . makes it possible to work in tight quarters. Machine dumps clear over banks . . . eliminates dozer clean-up . . . pulls away from edges safely, with front drive-wheels always on firm footing. Frameless construction eliminates most ordinary trouble spots . . . reduces maintenance. Rear-Dumps easily interchange with scraper units behind Tournapull prime-movers. *Get full details!*

† Trademark

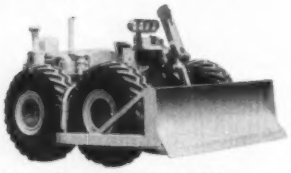
Match power to load with
7 sizes L-W Adams† graders
. . . do more work per $ invested!

Select the *right* grader for your particular need from this most complete range of sizes: Biggest in line is L-W POWER-*Flow*® 660; 190 hp with torque converter, infinite speeds to 27.4 mph. Second in size is the "660"; 160 hp, 8 forward speeds to 26 mph. Next, the POWER-*Flow* 550; 135 hp with torque converter, infinite speeds to 25.8 mph. Three medium sizes: "550", "440", and "330" — 123, 115, and 80 hp — all with constant-mesh transmission, 8 forward speeds to 25 mph. The utility model "220" provides 60 hp, 5 speeds to 18.3 mph. *(Creeper speeds optional on all gear-shift models.) Ask for demonstration!*

Please turn the page . . .

TOURNAPULLS (27, 18, 9 cu yd)

REAR-DUMPS (35, 22, 11 tons)



210-hp TOURNATRACTOR

420-hp TWIN-C TRACTOR

L-W ADAMS GRADERS
(190, 160, 135, 123, 115, 80, 60 hp)

MAIL TODAY!

Request for demonstration

(Mail to your LeTourneau-Westinghouse Distributor or to factory at Peoria, Ill.)

Gentlemen: Please make arrangement to demonstrate for us the machines checked here. We may need tools of this size on or about (date).....

Tournapulls: ☐ B ☐ C ☐ D
Rear-Dumps: ☐ 35 ☐ 22 ☐ 11
(tons capacity)
☐ C Tournatractor ☐ Twin-C Tractor

Motor Graders:
POWER-Flow ☐ 660 ☐ 550
Constant-Mesh ☐ 660 ☐ 550
☐ 440 ☐ 330
☐ 220 Sliding Gear

NAME .....

TITLE .....

FIRM .....

ADDRESS .....

CITY .....

STATE or PROV.....

PHONE .....

(It is understood that we are under no obligation.)

Litho in U.S.A. LA-1621-DC-4

To conserve cash reserve ...make sure you get greatest earning capacity for your machinery money

Great improvements have taken place during the past few months in the pace-setting line of LeTourneau-Westinghouse earthmoving tools. Wider selection, bigger capacities, greater speed, lower up-keep . . . advantages engineered to help you cut costs and UP your profit margin. So many advantages, in fact, that we believe the only way we can do them justice is by actual demonstration.

Fill out and mail "request for demonstration"

Address it to your nearest LeTourneau-Westinghouse Distributor, or send it to the factory and it will be forwarded to the L-W Distributor best situated to give you prompt service. *You will be under no obligation, so do it now!*

"Get-ahead" with the years-ahead L-W line

LeTourneau-Westinghouse originated the two-wheel, electrically-controlled, rubber-tired prime-mover . . . and was first to introduce a rubber-tired, heavy-duty tractor. More than 12,500 of these machines, working in all kinds of conditions in all parts of the world, have established unequalled records for dependability and low-cost production. Same is true of the pioneer Adams line of motor graders, up-graded in recent years by L-W research and engineering. So, "get-ahead" with "years-ahead" L-W machines . . . improved constantly for your benefit.

Before you buy your next earthmoving machine, see your L-W Distributor. Get his answers on *what machines* work best, on *which jobs*, at *lowest-net-cost* to you. You can depend upon straight answers! He wants to merit your confidence.

LETOURNEAU-WESTINGHOUSE COMPANY
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company
"Where quality is a habit"

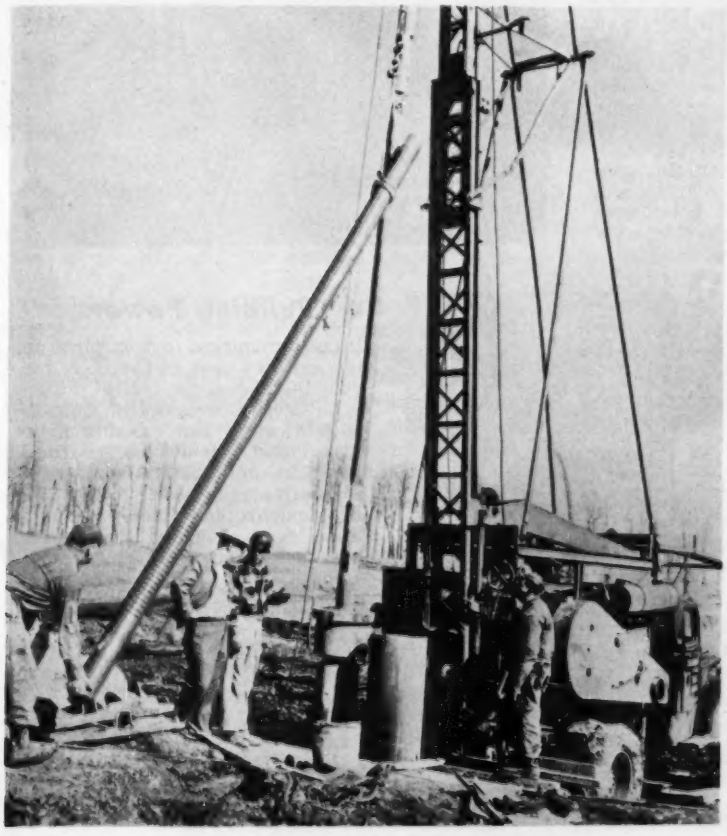
Construction News in Pictures . . .

Across the Mississippi

Austin-Western hydraulic crane places one of the 700 sections of steel decking for the $65-million Mississippi River Bridge between New Orleans and Algiers, La. About 126,000 sq ft of the steel decking fabricated by Blaw-Knox Co. will go into the 2,428-ft over-the-water section of the span. Sections of decking are 26 ft long, 7½ ft wide, and 5 in. deep.

Crane Lifts Crane ▲

Big Manitowoc 3500 lifts cab of Link-Belt truck crane out of excavation for an addition to the Daily News Building in New York. A. J. McNulty & Co. erected steel for lower floors with the two cranes. When the truck crane bottled itself into a corner, the Manitowoc lifted it out in three pieces. Guy derricks will erect the steel for the higher floors.



Plastic Protection

A crew of Lauman Construction Co. installs a 20-ft length of B. F. Goodrich Koroseal plastic pipe to form one of 23 relief wells in a chain of dikes along the St. Lawrence Seaway. The 6-in.-dia slotted pipe will tap pervious zones 20 to 50 ft beneath the dikes and draw off underground water that might otherwise undermine the embankments by mud boils.

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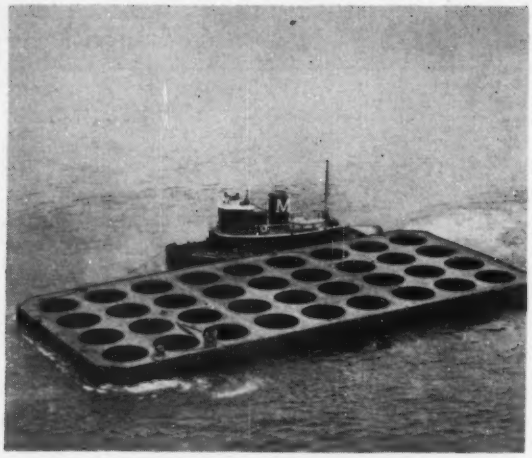
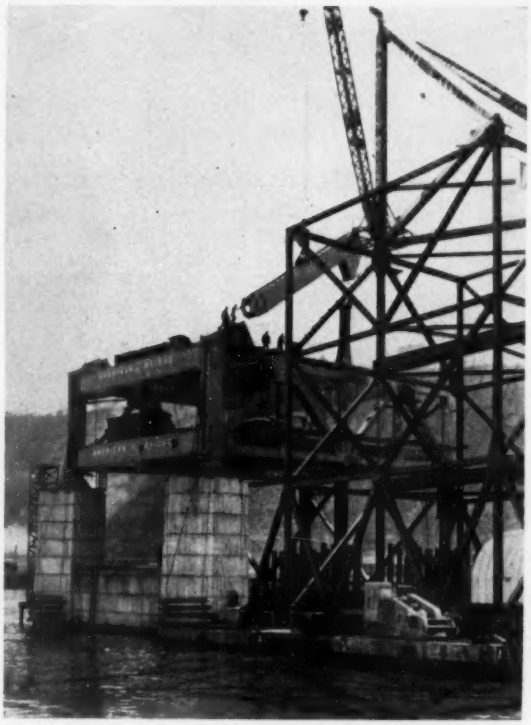


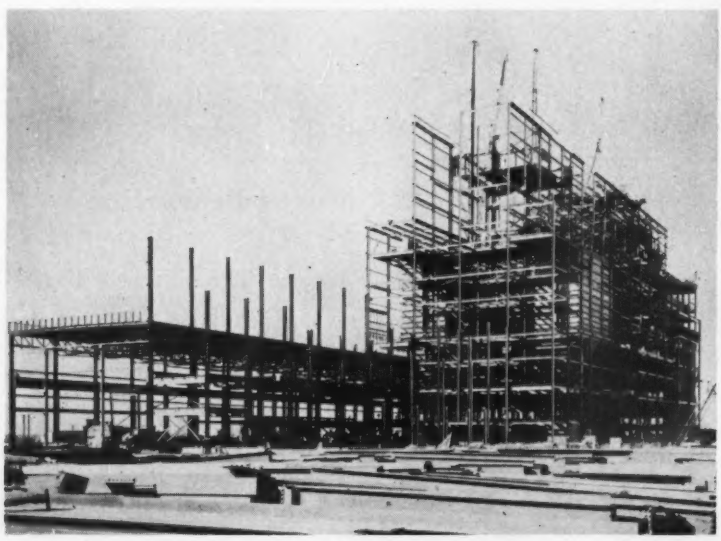
Foundation Afloat

Tug tows caisson for tower pier of Throggs Neck Bridge across the East River in New York City. The 75 x 162-ft box weighs 570 tons and is 13 ft deep. Its double walls taper from the cutting edge around the perimeter to a maximum thickness of 5 ft. The 36 dredging wells are 14 ft in dia. Merritt-Chapman & Scott Corp. is building the two tower piers.



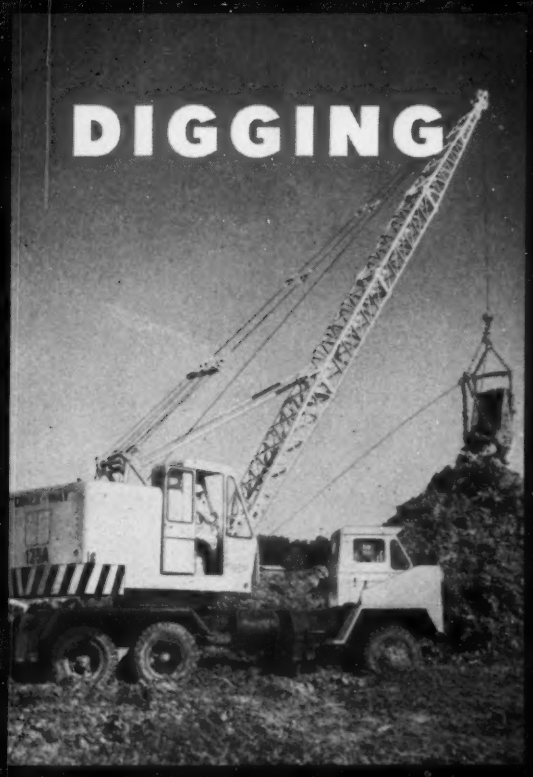
Double-Decker

American Bridge crew places a heavy steel member for the superstructure of the new Fort Pitt Bridge across the Monongahela River at Pittsburgh. Superstructure of the double-deck bridge rests on 26-ton steel foundation pedestals, supplied by Blaw-Knox Co., atop each masonry pier. The bridge will be 2,600 ft long with a tied-arch center span 750 ft long

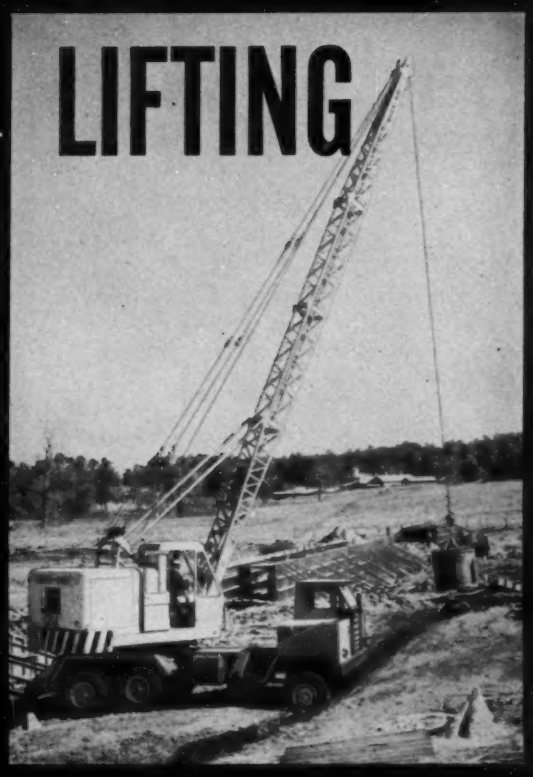


Building Power

Biggest municipal power plant in the southern part of the U. S. begins to take shape. Allied Structural Steel Companies of Chicago is fabricating and erecting more than 11,000 tons of steel to frame the $121-million, three-unit plant that will supply power to the City of Memphis and Shelby County, Tenn. It is scheduled for completion early next year.



DIGGING *or* LIFTING



"QUICK-WAY"® is an all-around money-maker!

Here's a "QUICK-WAY" 125-A owned by Montgomery Construction Company, San Antonio, Texas, doing a job in Huntsville. These photos show the Montgomery machine digging out a culvert and then pouring concrete on the same job.

The five-model "QUICK-WAY" truck shovel line has been especially engineered to offer companies, like Montgomery, all the small shovel versatility with all the big shovel features. The "QUICK-WAY" has been engineered to meet rugged heavy duty specifications with fewer moving parts. The power train is oversized, all shafts are splined for easy maintenance. Extra strength has been built in the machinery frame and gantry for greater lifting power.

"QUICK-WAY" 125-A shovels are available in 6/10 yd., 12½ ton truck mounts; 105-A in 5/10 yd., 10½ ton truck crane; 105-AC in 5/10 yd. crawler; 85-A in 4/10 yd., 8½ ton truck crane; and 85 AC in 4/10 yd. crawler.

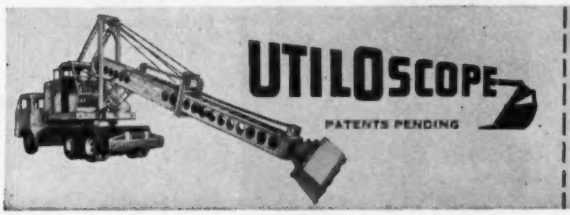
"QUICK-WAY" is the only truck shovel offering an interchangeable, hydraulic grading, digging attachment—the new UTILO-SCOPE makes dozens of jobs possible with only a single attachment.

"QUICK-WAY" has more big shovel features...with more engineered attachments...to handle more kinds of jobs...with greater profits.

For demonstrations and prices, see your "QUICK-WAY" distributor

"QUICK-WAY"® TRUCK SHOVEL COMPANY

a Ross-Knox subsidiary DENVER, COLORADO



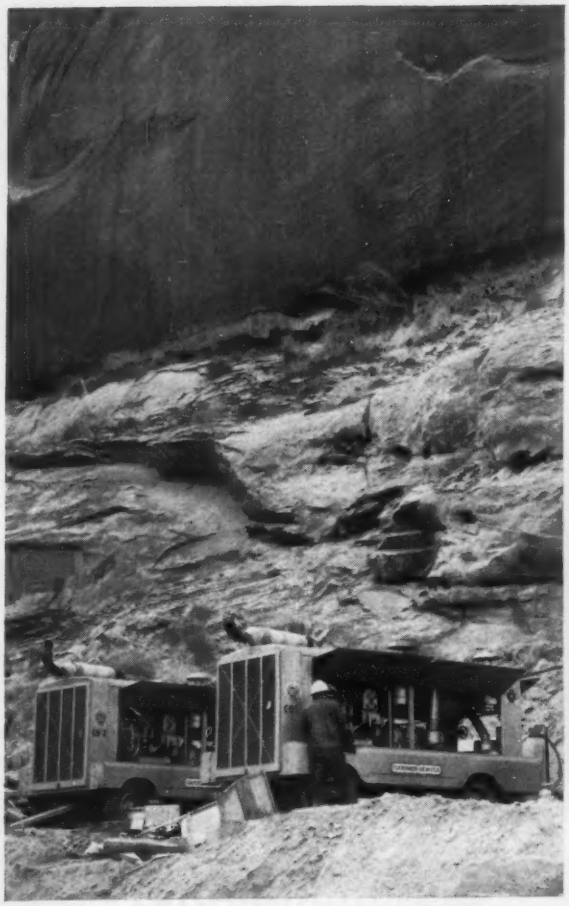
"QUICK-WAY" Truck Shovel Co., 2401 E. 40th Ave., Denver 5, Colo.
Please send detailed bulletin on the new "QUICK-WAY" UTILO-SCOPE hydraulic digging attachment.

Name_____

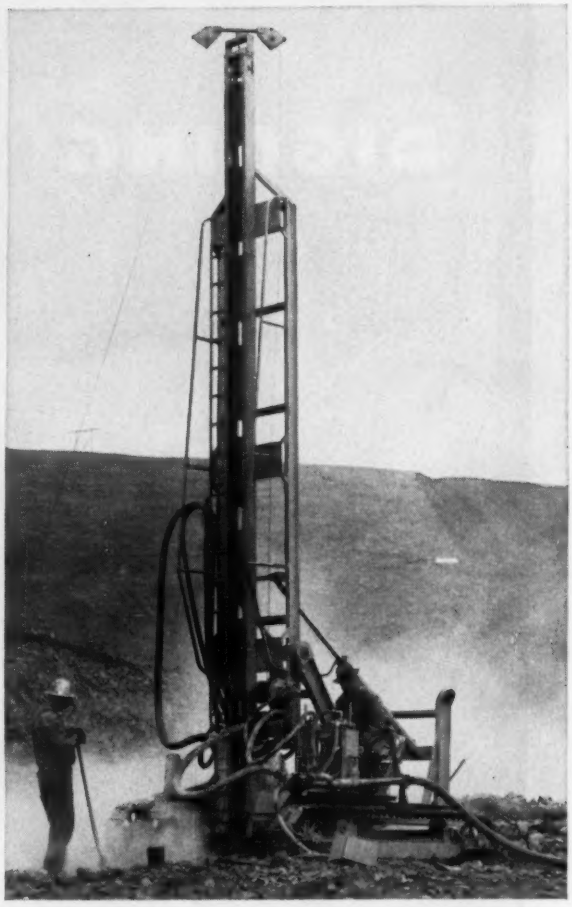
Company_____

Address_____

City_____ State_____



Gardner-Denver RP900 rotary portables. G-D rotaries are available in five sizes, from 125 to 900 cfm.

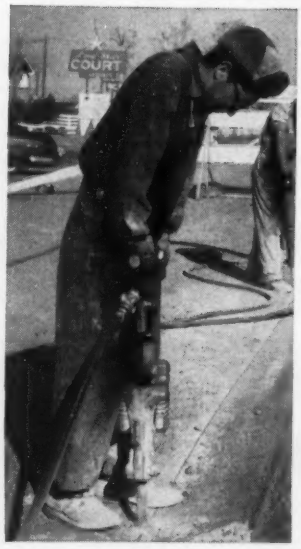


Here's a hard-hitting percussion drill with a 5½" hammer—the Gardner-Denver DH143 crawler-mounted drilling rig.

Quality equipment costs less to use...

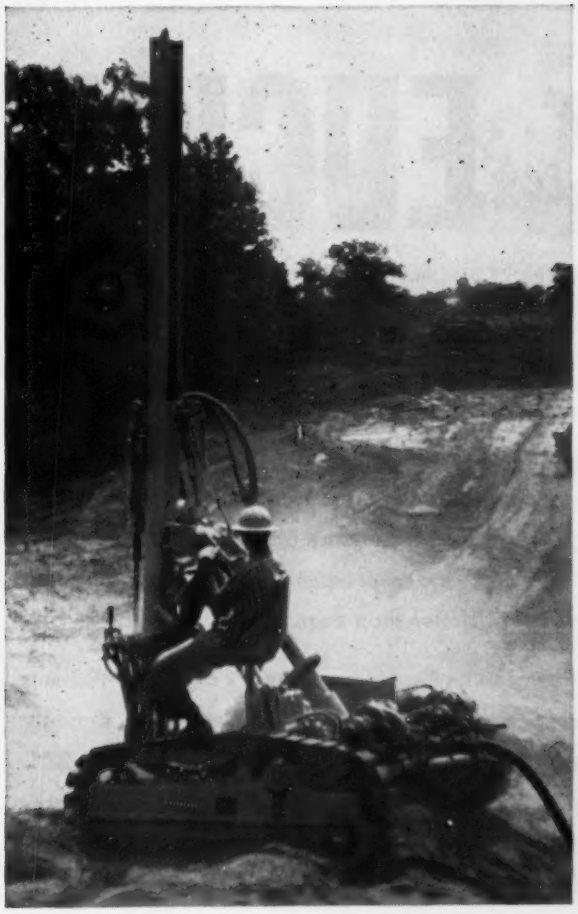
◀ Gardner-Denver sinker drills come in a complete range of sizes. A size and model for any type of rock.

Break it up fast with a ▶ lightweight, heavy-duty Gardner-Denver paving breaker. Hard-hitting models available in three weight groups.

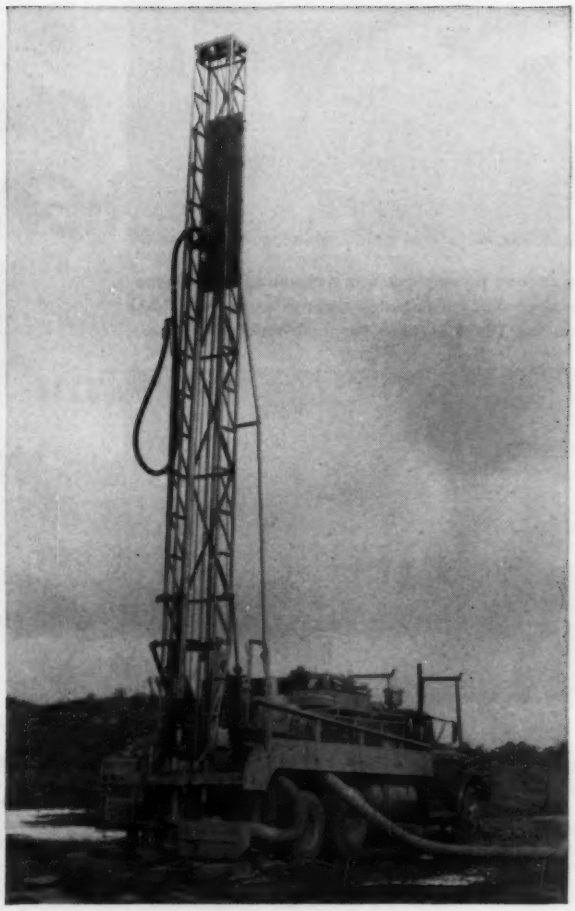


Other quality equipment in the Gardner-Denver line includes:

"Air Trac"®
Drifter Drills
Air Feed Leg Drills
Concrete Vibrators
Clay Spaders
Trench Diggers
Sheeting Drivers
Bit Grinders
Tampers
Air Hoists
Sump Pumps
Carburized Drill Steel



This deluxe model "Air Trac"® provides complete power positioning for all vertical, horizontal and flat lifter holes.



Drill big bore hole in a hurry with the Gardner-Denver "Mole-Dril"*. It follows the bit down the hole, delivers more foot-pounds of energy to the bit than any other drill of its size.

*T.M.

that's why heavy-rock contractors go GARDNER-DENVER

When it comes to moving mountains of rock, contractors rely on Gardner-Denver. These men know how Gardner-Denver equipment performs on the rough jobs. They know it's built to last longer . . . stands the gaff with minimum maintenance . . . gets the job finished faster at lowest cost. Drop in and see your nearest Gardner-Denver distributor soon.

ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

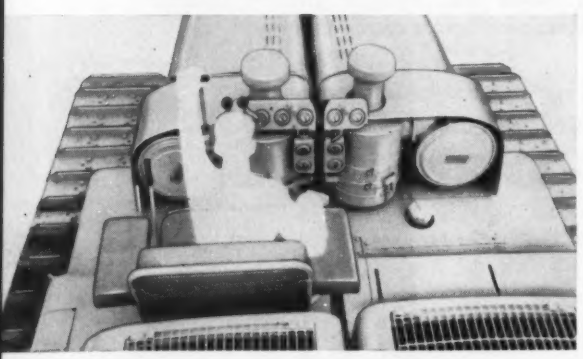
GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario

Tremendous power, quick maneuvering and on-the-go power shift cut valuable seconds from cycle times when the TC-12 is used for push-loading scrapers.

As a dozer, this Twin-powered Crawler provides unmatched work-ability because of its ease of handling, smooth push power and brute strength.

For heavy ripping work, you can count on unequalled drawbar pull and plenty of stability to do a really fast and thorough job.



With convenient, simplified controls, the TC-12 has no equal for operating ease—by keeping operator fatigue to a minimum, full shift efficiency can be maintained.

New Series EUCLID

Ever since the TC-12 was introduced, there has been no question about its top performance ability—even on the toughest crawler jobs. Now with over 3 years of field experience on practically every kind of operation, major product improvements make the new TC-12 better than ever.

Powered by two engines, there's a total of 402 net horsepower delivered to the power train through separate Torqmatic Drives for each track. Big 27″ shoes and 8 rollers give the TC-12 good balance with or without heavy duty dozer blades and other mounted equipment. Bare weight of the tractor has been increased to 67,000 lbs. as a result of heavier construction and more rugged components throughout.

With independent track drives, there's no dead track drag when turning—maneuverability of the big TC-12 with its full power shift saves seconds on every cycle whether you're push loading scrapers, dozing or pulling big equipment. And with unitized assembly, good design of component location and equipment mountings, this "Euc" crawler provides easy accessibility for service and maintenance.

Have your Euclid dealer give you all the facts on the new TC-12 . . . you'll find it's your best buy by far where big tractor performance is needed.

EUCLID DIVISION of GENERAL MOTORS, CLEVELAND 17, OHIO

TC-12 ... now even further ahead of other crawlers

in maneuverability . . . service accessibility . . .

in functional design . . .

and in work-ability

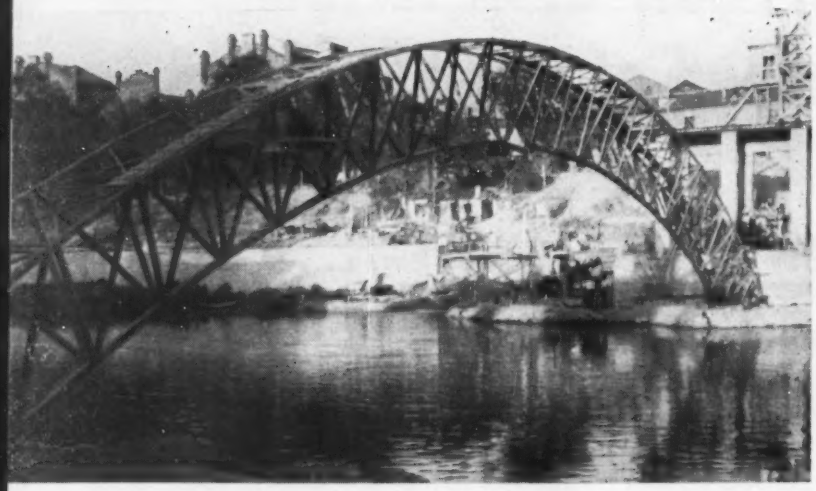
402 net h.p.
Torqmatic Drives
8 Track Rollers

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

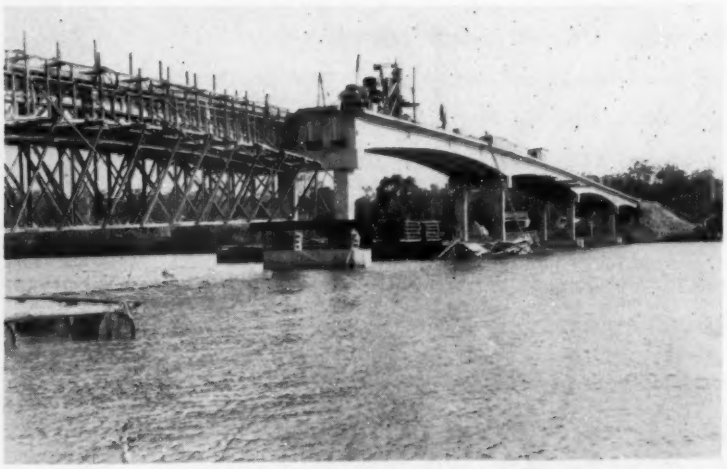
FOR MOVING EARTH, ROCK, COAL AND ORE

Construction 'Round the World...



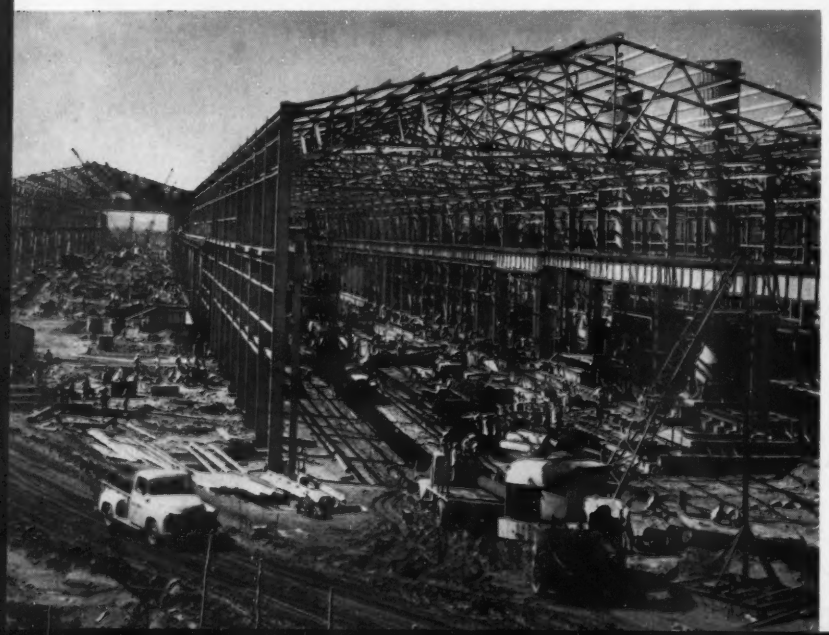
In Spain

A steel-ribbed truss made up of prefabricated pyramids will hold formwork for 1180-ft concrete arch bridge across the Pisuergo River at Valladolid. The units are lightweight and easy to handle. Adaptable to many types of construction, they're particularly suitable for arches because they can be built out from each side cantilever fashion without expensive centering.



In Australia

A movable steel truss supports formwork for a six-span prestressed concrete bridge across the Manning River in New South Wales. The four girders in each span are post-tensioned by the Lee-McCall system with seven 1⅛-in. dia. steel bars. Contractor E. S. Clementson Pty., Ltd., of Sydney completed the bridge—longest of its type in Australia—in 9 months.



In India

Two rolling mills under construction at Tata Iron & Steel Co. plant in Jamshedpur will soon be turning out rolled structural shapes for India's infant construction industry. Kaiser Engineers are supervising a $250 million expansion program, scheduled for completion this September, that will boost India's steel production to almost double present capacity.

Now being told on the inside...

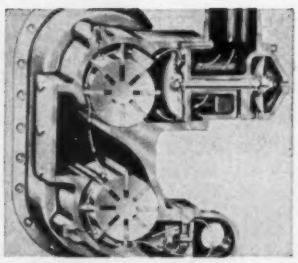
THE BLUE BRUTE ROTARY STORY

all about the 5 big benefits of the portable compressor with the exclusive over/under design ☞

ONLY BLUE BRUTE

Accessibility—All the principal working parts of a Blue Brute rotary can be removed and replaced in just 40 minutes with standard tools! The reason is Over-Under Design which keeps the outboard end of each cylinder exposed. You can check it on the spot and make adjustments without delay.

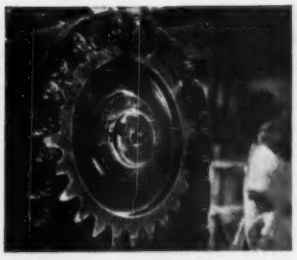
The Clutch—Unlike most rotaries, a Blue Brute's clutch allows you to warm up the engine *without engaging the compressor.* Less strain on the engine means easier starts, less wear and tear, years of extra life. As shown above the clutch is easy for the operator to engage and disengage.



Self-Draining Cylinders permit gravity flow of oil from low pressure cylinder through the interstage chamber, through the high pressure cylinder, and out the discharge to the oil reservoir. Oil cannot be trapped in cylinder low spots during shutdown. No chance for sludge or tar clogging the compressor.

Two-Stage Oil Separation—The first stage is a Vortex separator in the compressor discharge which removes 95% of the oil. (In the 125′ rotary a velocity change elbow is used.) The second stage is a vertical filter located in the air receiver. This is a long-life filter, easy and inexpensive to renew.

OFFERS THE BIG 5 thanks to exclusive over/under* rotary compressor design



Chain Drive–Driving power, from the high pressure rotor shaft to the low pressure shaft, is a strong silent chain drive. Based on actual field experience, this drive has a predicted life in excess of 20,000 hours, or 10 hours a day, 200 days a year, for more than 10 years!

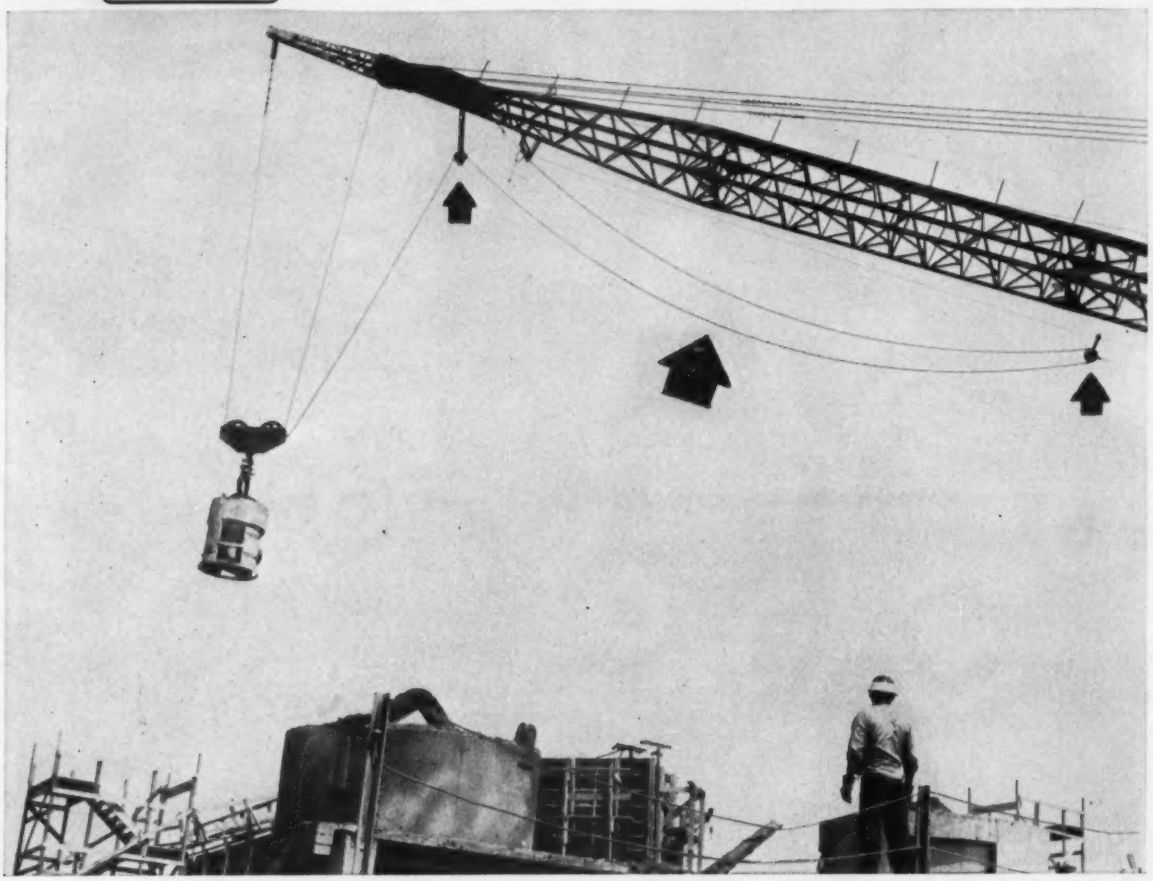
**Over/under design is a unique method of construction that puts the second stage compressor cylinder directly under the first stage. It is an exclusive Worthington development that benefits you five ways.*

Compare the Blue Brute rotary compressors with other leading units, feature for feature. Only the Blue Brute has the big 5 benefits. Blue Brute rotary compressors are available in 125′, 210′, 315′, and 600′ sizes from your nearby Worthington Blue Brute distributor. Ask for a demonstration. Worthington Corporation, Portable Compressor & Contractors' Tool Division, Holyoke, Mass. In Canada: Worthington Ltd., Brantford, Ont.

60-7

WORTHINGTON

B.F.Goodrich



Steel claw grabs 12-ton bucket of concrete

B.F.Goodrich hose is "jack of all trades" on St. Lawrence Seaway

Problem: That crane swoops down on a 12-ton bucket of concrete, picks it up and swings it over to workmen high atop a dam being built on the St. Lawrence Seaway. The black line you see attached to the crane is a hose. It carries air under terrific pressure, used to open and shut crane hook as it grabs the bucket. One problem.

This continual tugging and bending would quickly ruin ordinary hose. With thousands of tons of concrete needed to build a dam, there's no time to wait while hose is replaced.

What was done: To avoid costly delays, the project manager wanted a hose that could take this abuse. The B.F.Goodrich distributor recommended B.F.Goodrich Type 50 air hose. This hose is built for rough treatment. It has a cover so rugged that even dragging over sharp rocks won't tear it. And a special reinforcement makes it so strong it can stand constant twisting and bending without breaking.

Savings: In use three months when the picture was taken, this B.F.Goodrich hose showed no sign of wear, was expected to last at least six months more. This B.F.Goodrich hose is also used on dozens of other jobs on the Seaway—to supply air pressure to hundreds of pneumatic tools that drill, dig, vibrate; and also doubles as water hose, suction hose and cement grouting hose.

Where to buy: Your B.F.Goodrich distributor has exact specifications on the hose described here. And, as a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Co., Dept. M-377, Akron 18, Ohio.*

B.F.Goodrich *industrial products*

Construction Methods AND EQUIPMENT

JUNE, 1958

VOLUME 40 • NUMBER 6

HENRY T. PEREZ, Editor

Why They Fail

ONCE AGAIN contractors have set a record: More went broke in the first four months of the year than in any similar postwar period.

According to Dun & Bradstreet, 764 construction companies failed —209 in the month of April alone. And their total liabilities amounted to more than $40 million. That's performance the industry can be real proud of!

What caused these firms to go under? As in the past, more than 80% of the failures were caused by "incompetence, lack of managerial experience, and management's not being well rounded in sales, finance, purchasing, and operation." In other words, they just didn't know their business.

But fully 60% of those who didn't know their business blamed competition for their plight. Competition was so rough that the contractors who failed either couldn't get jobs or else had to take them below cost.

Well, instead of blaming the competition, they should have blamed themselves. Below-cost work will never turn a profit. And if a contractor does not know his costs, or if he deludes himself by ignoring such things as equipment depreciation when figuring bids, he's better off out of the picture. While he's around, he's a menace to everyone—including himself.

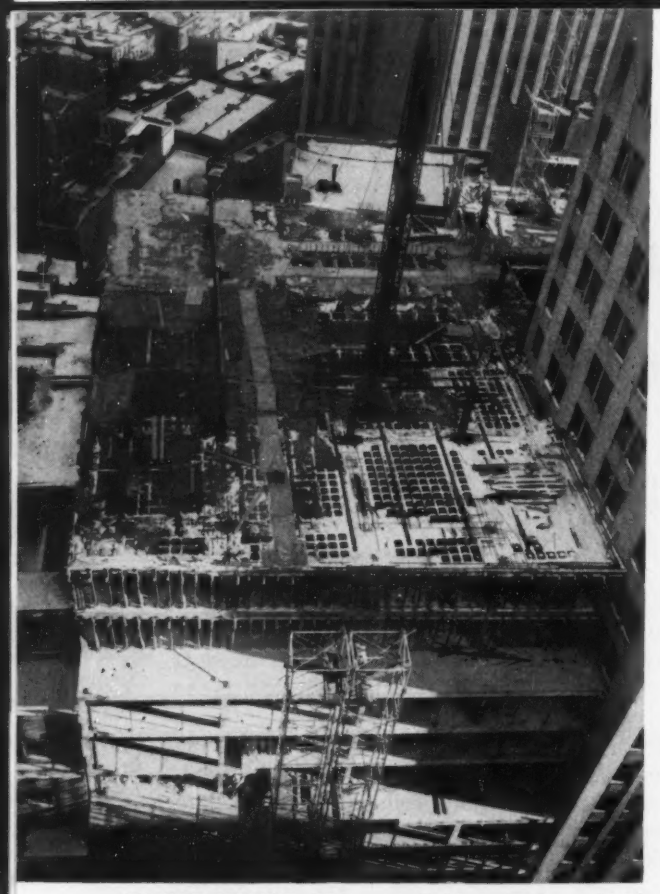
How do you keep yourself a going concern rather than a failure statistic? Figure your costs correctly, add a profit, and bid accordingly. Too many contractors, hungry for work, base their bids on what they think the other fellow is going to enter. This may get the jobs but it won't generate the profits.

And speaking of profits, look at the money that's being left on the table. At one recent letting there was a spread of more than $10 million between low and second bidders—and the job was only $32.4 million.

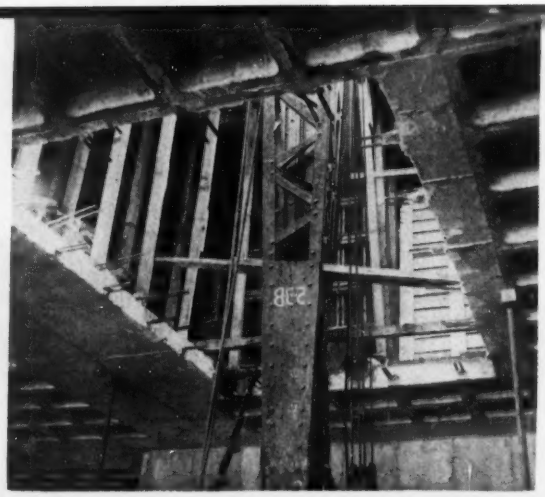
This 30% difference is extraordinary, of course, but spreads of 10% to 15% are not uncommon. And this in an industry where the contractor's profit, as disclosed by a recent survey, is not much more than 1%.

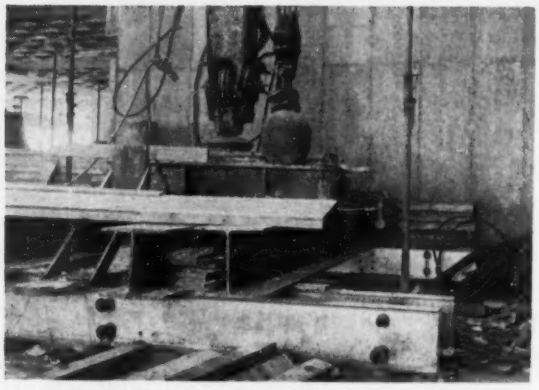
Along those lines, make an analysis of the last few jobs you've been awarded as low bidder. Increase your profit figure a couple of percentage points in each instance. Now see how many jobs you still would have been low bidder on. Also figure the revised profit on those jobs. Chances are you'll find you'd have done less work for pretty much the same total dollar profit.

Now, was the extra sweat and worry on the high-volume low-profit work really worth it? Don't forget, when you're stretched too thin, even one sour job can throw you into the failure class.



CRAMPED DERRICK—With mast pulled in against boom, derrick waits until three concrete floors are built around it. Then it jumps itself to next level to erect steel columns for three more floors.





DERRICK DETAILS—Concrete crews leave temporary hole in floor for derrick (above). Mast sits on steel beams straddling the hole (below). Special shoring supports floor slab under derrick base.

Concrete Skyscraper Shows Off

STEEL CREWS on one New York skyscraper job don't get to see much of the construction. They stay on the job only three days at a time; then they leave the site for three weeks.

It's an unusual schedule. But the schedule isn't the only unusual feature of the 110 William Street Building. The job has been full of innovations from the start.

- The building is a composite structure with some steel columns and the remaining columns and the floors reinforced concrete. Steel and concrete crews work alternately, and co-ordination is a problem.
- The big guy derrick for steel erection rides on a complex shoring system instead of on the structure itself as would be the case with a steel building.
- The concrete subcontractor operates his own complete mixing plant in the basement.
- An unusual but effective combination of cranes and hoists handles materials.

The job is a $25-million, 31-story building in New York's Wall Street district. Most of the construction problems stem from the fact that during the planning stages of the project, in 1956, there was a severe shortage of steel.

To beat the shortage, the architects, Sylvan and Robert Bien, modified the steel skeleton design so that the building requires only 1,200 tons of steel for a central core. Charles Mayer, the steel designer, substituted built-up welded columns, fabricated in Belgium, for the unavailable rolled H-sections in the core.

The contract to build it went to Iron & Reynolds-Snare, a joint venture. Karl Koch Erecting Co. handles steel erection, and Rizzi Construction Co. has the concrete contract.

Scheduling Problem

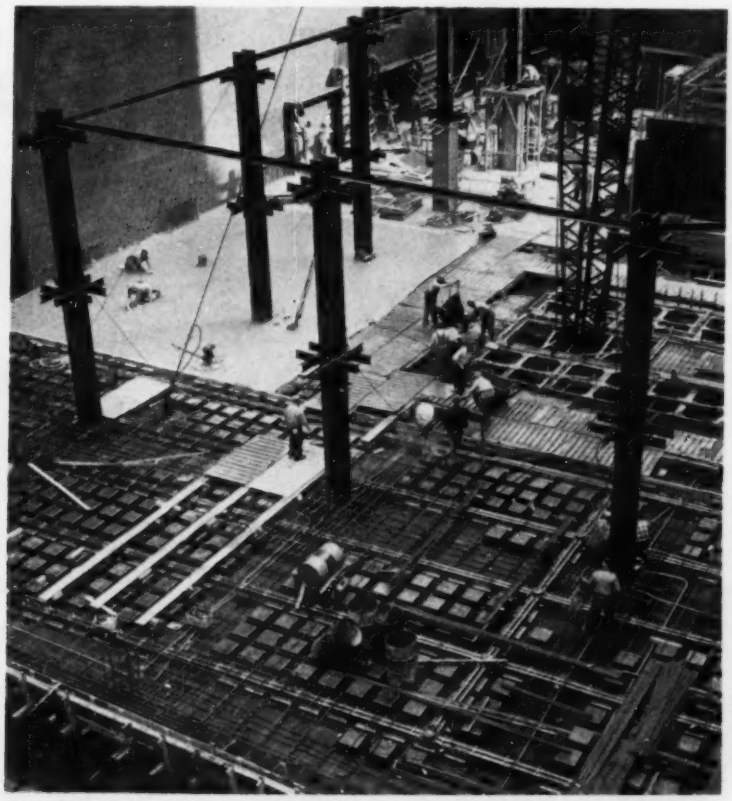
A 21-story existing building is on a corner. The L-shaped 31-story addition fits around it.

The main columns in the addition are structural steel, but there is no horizontal steel bracing; the concrete floor slabs and 12" elevator walls provide the lateral support. These slabs are waffle-type, two-way dome slabs.

Koch's crews can move upward with steel columns only three floors at a time. Then they have to wait until Rizzi can pour these three floors to brace the columns.

Scheduling isn't much of a problem for the steel erectors. They work continuously for three or four days, then move completely off the site to another job during the 10 to 20 days it takes Rizzi to catch up.

Rizzi finds it tougher to keep crews busy because they can't move men off the job for just a few days of steel erection. But



UNUSUAL BUILDING—Steel columns form core of the building. Lateral support comes entirely from the concrete floor slabs. Temporary T-beams brace top of columns until floors reach that level. Floor is waffle-type two-way slab, requires few beams or girders.

New Building Methods

there is usually enough minor concreting on the lower floors to keep the crews occupied.

Scheduling is easier as the building goes up. There were 22 steel columns at the first floor; on higher floors they are gradually replaced by reinforced concrete columns. At the 23rd floor, where the work now is, there are only five steel columns.

Rizzi crews work on two floors at once. After part of the floor is in, they start putting up shoring on it for the next floor. On the average they complete one floor per week.

The contractors expect to top out this fall, and to finish the new building by the summer of 1959.

Steel Erection

The biggest problem for Koch is supporting the main guy derrick. This would have been easy on a steel skeleton building, but concrete floors are not strong enough to carry such a load, especially soon after pouring.

The solution is a system of shoring that transfers the weight of the derrick directly down to the foundation of the building. The derrick now is working on the 23rd floor and is resting on the concrete slab at that level. But it is the shoring under each floor that really carries the load. In effect the derrick sits on a concrete and timber tower 23 stories high.

The derrick moves upward through a series of temporary 14x10-ft openings that the concrete crews leave in the floor. With its base on one floor, the derrick erects the columns for three floors above. Then it pulls its boom in against the mast while three concrete floors are built around it.

The derrick jumps itself up three floors at once and positions itself on a platform across the hole in the top floor. Four 12-in. I-beams span the hole and carry four 14-in. transverse WF beams to form the platform.

The ends of the support beams rest on the concrete floor at the edges of the hole. At these points on each floor 8x8 timber shoring transfers the load from ceiling to floor right down to the bottom of the building.

Koch crews moved the derrick up the first 13 floors through an elevator shaft, adding to the shoring tower as they went. At the 13th floor they spanned the heavy walls of the shaft with two 27-in. I-beams and started the process over again from there. This allowed them to remove the shoring on the lower 13 floors so the elevator contractor could start.

Above the 13th floor the derrick goes through specially made openings. The concrete crews close these holes after the derrick goes through, but the shoring remains until the end of the job.

The derrick has a 100-ft mast and a capacity of 20 tons. It works only on the larger wing of the L, where its 90-ft boom is needed to reach all the columns.

On the smaller wing the procedure was different. Here the steel columns stop at the 19th floor (columns are concrete from there up). Koch rigged a 90-ft Chicago boom on the side of the old building. With its base laced to the interior columns on the 16th floor of the old building, its top reached the 21st floor, and it easily handled the erection.

The steel columns, including shear heads, seat angles, and splice plates, are shop-fabricated by welding. But all field connections are bolted. Each length of column sits on the carefully milled head of the previous one and is connected with 16 bolts.

The ⅞-in. bolts, manufactured by Russell, Burdsall & Ward Bolt & Nut Co., are tightened with a hand torque wrench that applies 470-ft-lb of torque to each bolt.

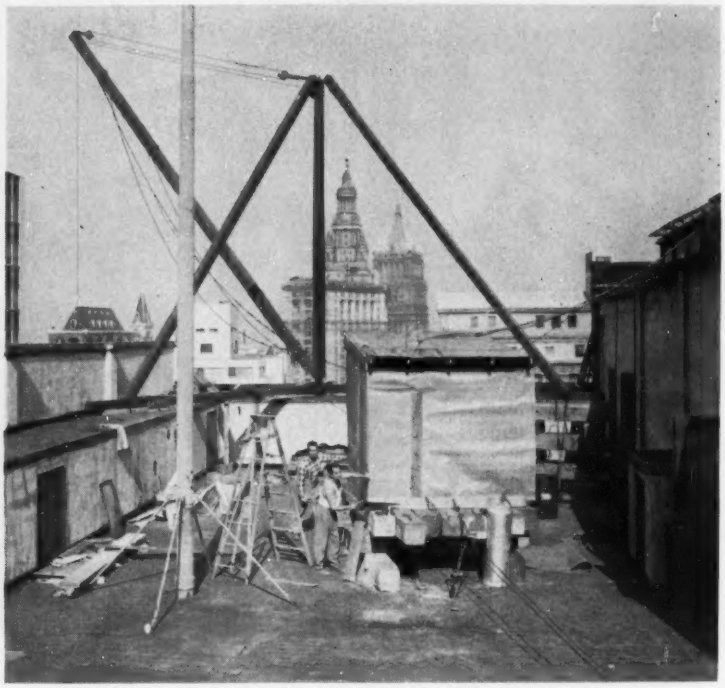
A job like this is a natural for bolting. There are comparatively few connections, so the process is really a series of small jobs that could not support a full-time riveting crew. Koch figures a four-man rivet crew would take a whole day to complete connections on one floor. Two men do the bolting in half a day.

During the erection, guy wires help plumb the columns. Light T-sections bolted across the tops brace them during the pouring.

continued on next page

Concrete Setup Includes

HANDLING CONCRETE — Buggies on 23rd floor load concrete hoisted from plant.



HANDLING REINFORCING—Stiffleg 1-ton derrick on roof of 21-story old building picks reinforcing steel off trucks in street. Second derrick works on the opposite wing.

Concrete Plant

Rizzi decided to mix concrete right on the job for two reasons. One is the access situation. The narrow streets and traffic congestion in the area would make it difficult to discharge ready-mix trucks on the street.

And with a plant on the job, Rizzi has more control over concrete delivery. It takes tight scheduling of concrete pouring to keep dead time at a minimum. The flow of job-mixed concrete can start or stop in a matter of seconds; lag time for ready-mix might be a matter of hours.

The plant is in the south wing, 80 ft from the street. A timber ramp, sitting on the permanent foundation pile caps, leads from the street to the plant. This allows aggregate and concrete trucks to get off the street for unloading.

The unloading area has to be two stories high to allow trucks to dump. Rizzi provided this space by spanning the area on the third floor level with thirty-six 10-in. Spannal beams.

The shape of the building caused some modifications in the plant layout. Normally in a concrete plant the aggregate and cement bins are lined up to feed easily by gravity into the mixer. But here the wing of the building is so narrow that there was room only for the aggregate bins near the batcher.

The 250-bbl cement bin is under the ramp where the trucks can dump right into it through a trap door. A screw conveyor moves cement forward to the scales; a second conveyor under the scales moves it to the mixer.

A 15-ton sand bin and a 20-ton aggregate bin supply the batcher. The design of the building calls for two types of aggregate—regular gravel for the first 10 floors then Lelite lightweight shale.

The light aggregate reduces the weight of the concrete from 150 to 108 lb per cu ft. But it makes it harder to handle and pour.

Rizzi has several devices to speed the flow of material in the plant. Shakers help unload trucks and bins. In addition, a fluffer device shoots air into the cement bins to keep the cement loose. This is purely a physical means of preventing cement from sticking to the bin and has nothing to do with a chemical air entraining agent that is added later.

A CMC-28S mixer gives the plant a capacity of 60 yd per hr. During the winter, specifications called for the concrete to be poured at a temperature of 70 deg. To achieve this, a Viking Superior gas-fired boiler fed water into the mix at 180 deg.

Because the plant is on the job, the inspectors (Robert W. Hunt Co.) moved onto the job too, and set up their testing lab near the plant.

Pouring Concrete

To get concrete from basement to working area, Rizzi built an inside hoist tower. The building completely encloses the tubular steel tower but doesn't support it.

A United electric hoist in the basement delivers 125 hp to lift the concrete bucket at 300 fpm. At the top floor the bucket dumps into a 1-yd hopper. The hopper in turn feeds hand buggies.

The grid floor requires special

Good Handling Devices.

NEW RIG—Unusual crane is on its way to top floor of new building. When connected to exterior column of building it will handle reinforcing steel above 22nd floor.

CRANE SUPPORT—Brackets bolted to floor behind column support crane's mast.

steel pan forms made by the Grid Flat Slab Co. of Boston. Most of the domes are 8-in. deep and 2x2 ft squares.

Timber shoring supports the forms. Wood beams on top the shoring could hold the steel dome forms, but Rizzi figures it is easier to lay solid plywood sheeting on top of the shoring. This takes a little more material than the framework would, but it goes up much faster.

To remove the pans after the concrete has set, the crews loosen them first with a blast of air through a small hole in the top.

Ajax steel-pipe reshores support the two floors below the one being poured.

Materials Handling

The old building, sitting inside the L-shape of the new, offers a natural platform for cranes. Rizzi set up 1-ton, stiffleg derricks on two corners of the 21-story building to lift reinforcing steel from trucks in the street to the working floor. This worked fine until the new building reached the level of the derricks. Now something new has been added.

A telescoping crane, developed by the United Hoisting Co., is fastened to the outside of one of the building columns and lifts itself up as the building rises. The derricks still hoist steel from the street to the 22nd floor. The new crane takes over from there.

The rig consists of a main 10-in.-dia circular steel mast through which the hoist lines pass. On top, a horizontal, triangular-shaped truss forms the boom and counterweight. The main mast extends 20 ft above the top floor so the boom can swing a full circle.

The boom is 20 ft long, and the crane has a lifting capacity of 2,000 lb. A 5-ft jib extension has a capacity of 1,000 lb. The boom swings easily; it can be moved by hand.

On each of the three top floors, brackets connect the crane to the exterior of the building column. The brackets consist of two I-beams that straddle the column. The back end of the bracket is bolted to the concrete floor. A steel plate spans the front end. The plate has a 10-in. circular hole through which the mast passes.

The crane moves up one floor at a time as the building rises. Lifting it is a hand operation. A special lifting cable connects to a bracket on the main mast. A crew lifts the rig with chain falls so the base of the mast is above the bracket on the next highest floor. Then they place a solid steel plate across the bracket to block the hole in the fixed plate. The rig sits on the plate.

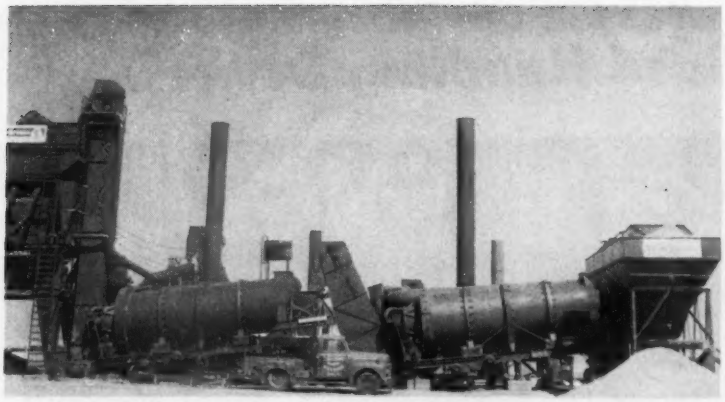
Personnel

M. F. DeBell is project manager and H. Hochberg is superintendent for the general contractor, Iron & Reynolds-Share. Chief engineer for Karl Koch Erecting Co. is R. Lofredo. For Rizzi Construction Co. Tony Trione is engineer in charge of the job, Julius Nasso is general superintendent, and Louis Radioli is superintendent.

John F. Hirsch, 3rd, vice president of the 110 William Street Corp., is in charge of the project for the owners. John J. Hughes is construction manager.

By ANDREW BORACCI
Associate Editor

Exacting specifications for 836 variations of bituminous and concrete roadbuilding on the $22-million AASHO Test Road Project in Ottawa, Ill., prove a real challenge for contractor S. J. Groves & Sons Co. This second and concluding article about the job describes how Groves meets this highly unusual test of its roadbuilding know-how.



TWIN DRYERS—Aggregates go through two dryings, then to bituminous plant.

OFF-ROAD LOADING— Gradall riding shoulder feeds finisher bituminous mix.

BITUMINOUS PAVING

Precision Paving Job Tests

YOU HAVE TO BE GOOD to pave to the exacting specifications required on the $22-million AASHO Test Road Project in Ottawa, Ill. If you're not—it can cost you money.

The contract S. J. Groves & Sons Co. holds contains some tricky provisions. Should paving go in ⅛-in. over or under what is specified, the contractor isn't paid for his work. Should it be ¼-in. over or under what is specified, Groves has to rip the work out and replace it at his own cost. And more than 200 engineers, technicians, and inspectors stand a constant watch on the job to make sure the specifications are met.

Visit the job and you'll see both bituminous and concrete paving that look like they should be done in a machine shop rather than on the flatlands of Illinois. Jack Healey, Groves' project manager, tells you the paving is even tougher than was building the earth embankments last fall.

Modified Machines

"Look at those machines," Healey says. "They look familiar, but most of them have been modified to meet the rigid specs for putting down the paving. Let's ride around and get a closer look."

Healey heads his car toward a cloud of white dust rising from behind a sandy knoll where the bituminous plants are located.

En route to the plants you look over several of the road's six test loops that will contain some 35,000 ft of 24-ft-wide paving. Half will be bituminous concrete; the other half, portland cement concrete. Paving will contain a total of 836 combinations of subbase, base, and surface.

You pass a Caterpillar motor grader rolling along on big doughnut-shaped tires.

"Airplane tires," Healey says. "All the graders that work on the base courses are fitted with airplant tires. Keep them from rutting the base."

Soon the car pulls up to two Barber-Greene hot-mix plants. One is B-G's 848 continuous-mix plant capable of turning out better than 80 tons of mix hourly; the other is B-G's Batchomatic 984 plant that turns out 4,000-lb batches of hot mix.

"Specs call for two plants," Healey says. "The continuous-

CONCRETE PAVING

CLOSE CONTROL—Inspectors stand careful watch over concrete paving. They take and test sample of each batch that leaves paver and later take cores from finished pavement.

Contractor's Skill

mix plant turns out surface material while the big plant turns out binder. With two plants we don't have to change screens between mixes or run the risk of producing impure batches."

Hot Mix Plants

Each plant operates with two dryers to insure that aggregates passing into the pugmills will be totally free of moisture. The first dryer removes water and fines. The second dryer maintains the aggregate temperature. (Plants work at less than rated capacity with occasional long idle periods. The second dryer keeps the aggregates warm while waiting to be mixed).

The two plant set-ups are similar. A crane handling a clamshell bucket charges hoppers that feed material into a cold elevator. The elevator drops the material into the first dryer where water is removed. Material moves from the first dryer into a hot elevator and from there into the second dryer. A second hot elevator carries aggregates up into the plant.

Three 11,000-gal insulated tanks store asphalt. A fourth 11,000-gal tank stores oil that is heated to liquify the asphalt. Each tank is insulated with 1-in. aluminum-covered asbestos sheeting.

A Meadows high-temperature, hot-oil, heat-transfer system heats asphalt in the tank and helps maintain the temperature of the liquid asphalt throughout the plants. Specifications require that bituminous concrete remain in a temperature range of between 250 to 325 deg until placed. Variations of more than 20 deg make the batch unusable.

A Wheelco control center housed in a small shack keeps a permanent record of each batch. Recorded are the temperature of the aggregates before batching, temperature of the asphalt in the mixer, and temperature of each batch just before it leaves the plant's pugmill. This also works for the continuous mix plant.

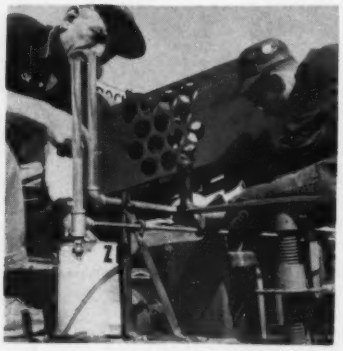
"Technicians check each batch before they let it move to the paving area," Healey explains.

Three International dump trucks carry bituminous concrete to the paving spread. Beds of the trucks are insulated with asbestos and aluminum to help keep the mix hot. Each batch, too, moves to the job under a tarpaulin covering.

"But batching itself isn't really so complicated," says Healey. "Things get a little more involved in the paving operation."

continued on next page

Clever Devices Help Operators Control Paving



LEVEL CONTROL— Liquid-filled glass tubes warn when finisher goes off level.

GRADE CONTROL — Electronic device alerts when rig rides too high or low.

Healey wheels off towards the paving spread. On the way, you pass a Koehring 34-E dual-drum paver with a conveyor instead of a bucket suspended from its boom. The machine is at work on a road shoulder spewing material onto the embankment.

"It's helping to put down base course for bituminous paving," Healey explains. "Specs call for a mixture of dolomite sand, stone, and water. Had to rig up that outfit to put down the material. Heavy machines for the most part aren't allowed to work on the base."

The paver moves slowly along the edge of the earth embankment. A batch truck pulls up and dumps a load of aggregates into the paver's skip. When the batch is mixed, it discharges onto the 42-ft electric-motor-driven conveyor. A generator on the paver supplies current. The conveyor dumps the mix into a self-propelled Blaw-Knox spreader. Material is placed in 4-in. lifts. A 15-ton Ferguson rubber-tire roller works behind the spreader, compacting each lift.

"All the base material goes in that way," says Healey. "The idea is to keep as many machines as possible off the base."

Base courses, Healey explains, may be crushed stone, soil-cement, or a dolomite-aggregate mixture with or without a bituminous prime coat. But each 4-in. lift is compacted and tested before an additional lift is placed.

Off-Road Paving

Healey pulls up behind a loaded batch truck that just has arrived at the bituminous concrete spread. You expect the truck to move up in front of the Barber-Greene finishing machine waiting on the spread. Instead, the truck comes to a stop off the highway. A Gradall, fitted at the end of its boom with a ½-yd front-end loader bucket, lumbers up to the truck.

Its bucket dips into the batch. The boom retracts, telescopes out to the finisher, and dumps the bucket-load into the finisher's hopper.

"Can't let the truck on the paving," says Healey. "Too much weight for the surface."

You take a closer look at the finisher, and it appears to be crawling alongside a thin wire at the edge of the paving.

"That's part of an electronic device that helps control the thickness of the paving," says Lou Gionetti, superintendent for Rock Roads Construction Co., bituminous paving subcontractor to Groves.

"Specifications," says Gionetti, "allow us a tolerance of only ¼ in. on the black top. That's tough."

The wire, he explains, is set to finished grade and helps tell when the machine moves above or below tolerance. A small device set on the side of the finisher has two metal prongs that ride ⅛ in. above and ⅛ in. below the wire. Should the machine move ⅛ in. off finished grade, one of the prongs touches the wire and sets off a charge that sounds a buzzer and turns on a light on the finisher to warn the operator. The operator then adjusts his machine to bring it back to exact finished grade.

The operator has a second device that helps him check on whether his machine is working level. Two horizontal glass tubes set up in front of the finisher are fitted at each end with a vertical glass tube. Tubes are partially filled with a colored liquid. When the machine moves off level the liquid rises in one of the tubes, lowers in the other. Again the operator can adjust his machine to bring it level.

"There's a third device that insures perfect paving," Gionetti says. "It's the inspectors. They take test cores of every section to make certain paving is to the specified thickness."

Rolling, too, is intricate. First roller on the spread is a three-wheel Galion that makes several passes in rigidly controlled overlaps. This is followed by a Ferguson 15-ton rubber-tire roller. A Galion tandem finishes the rolling operation.

Rollers are fitted with an adjustable counterweight at each side to permit redistributing weight fore and aft on the roller depending on the thickness of the test section being worked.

Counterweights fit on a rack 5 ft long that rides back and forth on a steel track. Compression weight is varied by removing or adding heavy steel ballast plates to each platform. Normal weight of the roller thus can be increased by 5,200 lb.

Rock Road's paving fleet consists of three B-G finishers, three 13-yd International trucks, two Gradalls, and six rollers. Bituminous concrete paving ranges in thickness from 1½ in. to 6 in. in various combinations of binder and surface courses.

"Now let's look at the concrete paving," Healey says. "Things should seem a little more familiar down there."

On the way, Healey explains that the concrete paving ranges in thickness from 2½ to 12½ in., with and without reinforcing. Paving goes directly on a sand-gravel "mulch" base placed last fall. To retain the paving in its

many variations of thicknesses, Heltzel Steel Form and Iron Co. made up special steel paving forms for the job.

After these are placed, a Blaw-Knox subgrader makes a pass over the sections to strike off the surface to within ⅛-in. of specified grade.

Concrete Paving

Concrete for the spread comes from a 150-ton Blaw-Knox four-compartment aggregate batch plant working with two 600-bbl Blaw-Knox cement silos. Working areas and scales on both plants are covered with a polyethylene skin.

"Keeps the dust off the scales," Healey says. "Makes for more accurate measure."

A fleet of GMC batch trucks each carry four dry batches to the paving spread and dump into one of two Koehring 34-E dual-drum pavers. (These work two test loops simultaneously).

First lift of concrete is bucketed into place and screeded with a Jaeger spreader. Reinforcing steel—if specified—then is placed, followed by a top lift of concrete. The finishing train starts off with the Jaeger spreader, followed by a Jaeger finisher, and by a Koehring bull float. A double course of wet burlap is left on the concrete for 24 hr for initial curing of paving. After it is removed, the surface is covered with 8 in. of wet straw that is left in place. Chemical curing is not permitted on the job.

Joints are cut with Concut multiple-blade, self-propelled saws. Joints are cut every 15 ft for non-reinforced test sections and every 40 ft for reinforced sections.

Throughout placing, samples are taken of each batch of concrete for test purposes. After concrete has been placed and cured, cores are taken to check for thickness and compaction. The same tolerances, with the same penalties to the contractor, apply to concrete paving as to bituminous work.

"And that's about it," Healey says, stepping back into his car. Suddenly, a squawk comes in over the Motorola two-way radio in his car.

"Car One," says Healey.

"Jack," says a voice, "they're going to put surface course down on top of some bituminous binder on my section."

"All right," says Healey.

"But the engineers say they don't like the way it's been swept. They want us to do it again."

"I'll be there in a few minutes," Healey says.

"Never been on no road job like this —,"mumbles the voice, and the radio goes off.

"Men have a hard time getting used to this work," Healey says, puting the radiophone back on its hook. "All the inspection and the exacting requirements cut our production over a normal job by at least 75%."

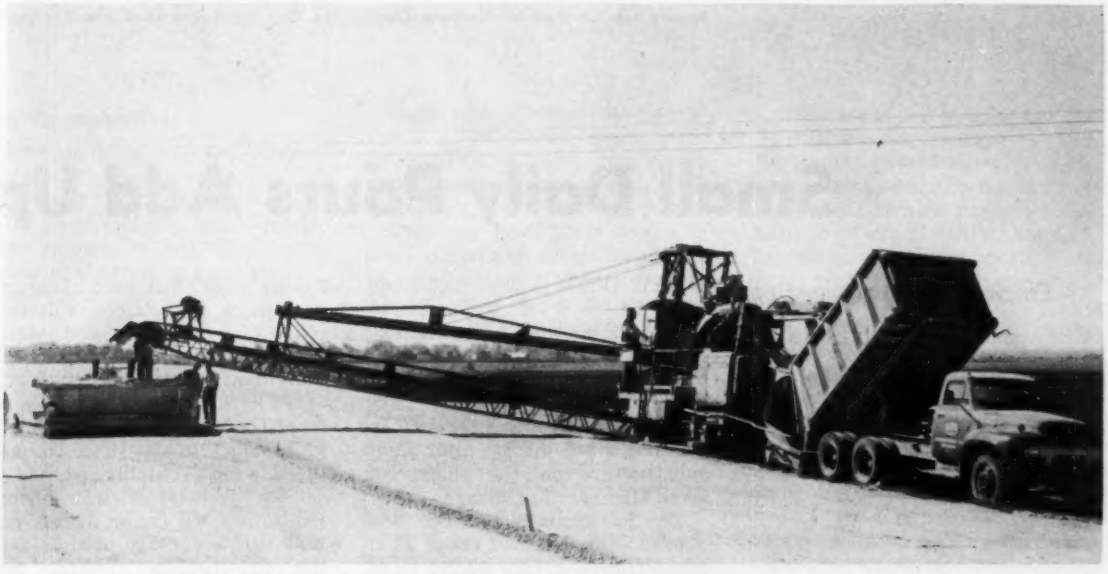
Healey takes off his hat and, wiping his brow says, "Frankly, I doubt if anyone ever will build a road like this one again."

The Test Road, sponsored by the American Association of State Highway Officials, is being administered and directed by the Highway Research Board of the National Academy of Sciences, National Research Council. All the 48 states along with the District of Columbia, Hawaii, Puerto Rico, The Bureau of Public Roads, the Automobile Manufacturers Association, and the American Petroleum Institute are financing the project. Even the Department of Defense is helping out.

Findings of the tests are expected to play important roles in the design of future highways throughout the country. Tests will be conducted for a period of two years after construction is completed.

Personnel

W. B. McKendrick, Jr., is project director for the Highway Research Board. Assisting Healey are Chet Farrell and Ralph Hart, superintendents.



PLACING BASE COURSE—Dual-drum paver fitted with electric-motor driven conveyor spews dolomite, aggregate, and water mixture later paved with bituminous concrete.

By JOHN HAMRIN, Superintendent,
Gust K. Newberg Construction Co.,
Chicago, Ill.,

as told to
ANDREW BORACCI
Associate Editor

ON CHICAGO LAKEFRONT—Complex design of two concrete filter plants creates big forming job for Gust K. Newberg Construction Co., but forces short concrete pours.

Small Daily Pours Add Up

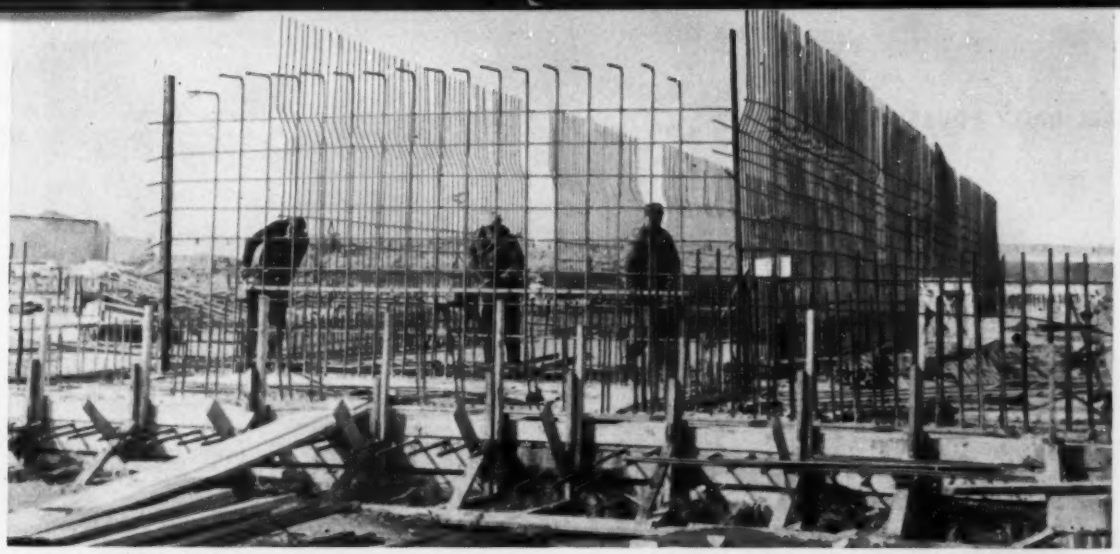
Efficient job organization proves key to building two concrete filter plants on the Chicago shore of Lake Michigan

WHAT DOES a contractor do when he has a lot of concrete to pour for a building, but complexities in design and layout limit him to relatively small daily pours?

That's the problem we face in building a $10-million filter plant substructure on the shores of Lake Michigan in Chicago.

The job includes two concrete 375x695-ft structures about 32 ft high. They will take 90,000 yd of concrete, 10,000 tons of reinforcing steel, and more than 34,000 timber piles. But each structure is a maze of tunnels, galleries, conduits, manifolds, and walls. That rules out anything but small individual pours.

It's hard to make schedules on mass concrete unless you pour a lot of concrete at a time. To handle this job profitably, we had to set up the most efficient job organization we could devise and take full advantage of time-saving construction methods and equipment, particularly in regard to forming. Let me show you how.



SETTING REINFORCING—Newberg's steel subcontractor Frank P. Noe Co. of Chicago sets up wall reinforcing before framework. Departure from usual procedure leaves work area clear for carpenters who then can form up both sides of a wall simultaneously.

MOVING FORMS—Laborers clean and oil forms on work bench then stack them on dolly that carries forms to carpenters at wall.

BRACING FORMS—Workman cranks out Baker-Roos adjustable shore that will help brace wall section in position before a pour.

Job Organization

Forming is one of the biggest single work items on the job. So carpenters are our key work force. We operate with seven crews organized out of a carpenter pool of 100 or more men.

One crew does bench work at the saw shed; a second crew works on rough forming in connection with the ground slab; a third crew handles wall forms; a fourth concentrates on slab form erection; and a fifth crew closes in bulkheads, places water stops, and touches up forms when they are ready for concrete. Two additional crews work on walls and walkways at high elevations.

We also break our laborer force of more than 200 men into several crews. Two crews work with concrete exclusively; other crews move materials about and, with carpenters, clean and oil forms.

Only one road gives access to the job. Limited access meant we would have to do considerable stockpiling of materials to make them available to the men. So we built a road around the job. On this road, five cranes handle materials from stockpiles to work forces. These are a Bucyrus-Erie 22-B, two 38-B's, a Manitowoc 2000, and a P&H machine.

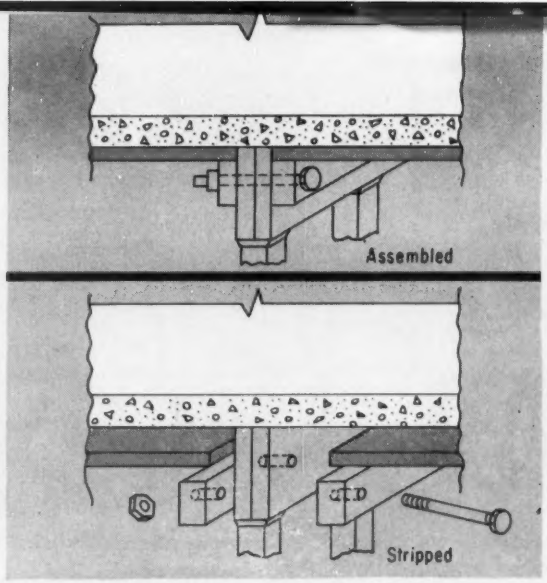
Cranes take materials from haul trucks and stockpile them close to areas where men are at work. They move easily along the road around the job.

Concrete is delivered to the site by transit-mix trucks. A Rex Pumpcrete machine, with 8-in. pipe, places concrete for most of the slabs. Concrete for walls and hard-to-reach places is handled by cranes and 2-yd buckets.

Reinforcing

We depart somewhat from standard procedure in placing our reinforcing steel. Usually, a contractor erects one form face, places the steel, then closes in the forms. On this job we erect reinforcing steel for walls before doing any forming.

Once steel is up, our carpenters come in and set up the form panels on either side of the rods, clamp them together, then brace



DENVER SYSTEM—On manifold and gallery slabs, Newberg employs method that permits stripping slab forms while shores are left in place. Form panels rest on 2x4's bolted to two 2x8-in. shoring headers supported by a line of adjustable single-post shores.

the forms upright by adjustable shores. Reinforcing is put in by a reinforcing subcontractor, the Frank P. Noe Co. of Chicago.

Wall, column, and slab forming might easily have been time-consuming and expensive except for some careful advance planning. We had to figure out ahead of time where we would place almost every form panel.

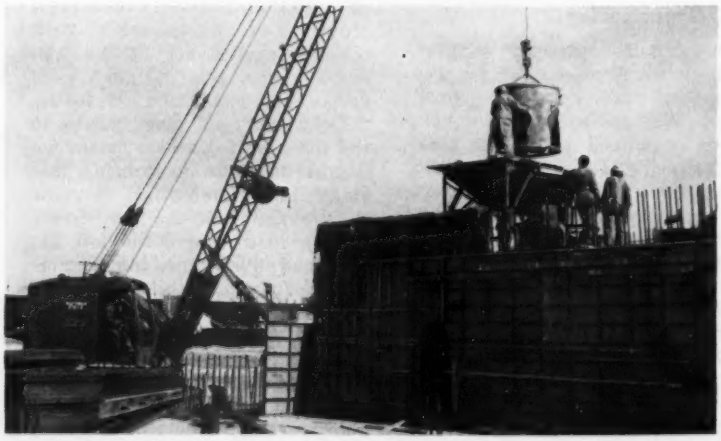
Universal Form Clamp panels work for most of the walls on the job. They come in a variety of shapes and are light in weight. This combination makes them easy to handle and highly adaptable to the job's complex shapes. We supplement the panels with odd sizes of plywood panels which we make up ourselves. For most of the slabs we form with plywood sheets placed over stringers and joists supported on Beaver Advance pipe scaffolding.

We form the narrow manifold and pipe gallery slabs with a method that permits stripping panels without taking the shoring from the job. Called the Denver system, Universal panels are placed on 2x4's bolted to 2x8-in. shoring headers. Adjustable-post shores support the headers.

When we remove the 2x4's, plywood panels fall onto the headers from their own weight. Workmen then can remove the panels leaving the shoring undisturbed. The combination of organization and methods keeps us pouring 200 to 500 yd daily.

Supervising construction, besides myself, are two assistant superintendents, William Hamilton and Alex Dalton.

CLEANING FORMS—Tornado heavy-duty vacuum cleans beam soffits of wood shavings and other debris to ready slab for concreting.



POURING CONCRETE—Bucyrus-Erie 22-B crane buckets concrete into slab hopper where workmen take and distribute concrete with buggies.

PRO OF THE PUSHLOADERS:
THE MIGHTY D9

Unbeatable road building team by Caterpillar: DW21 Tractor with No. 470 LOWBOWL Scraper is pushloaded by D9 Tractor

When Ivan Dement, Inc., Amarillo, Texas, contracted to build an 11-mile farm-to-market road in Paloduro Canyon, they knew that the territory was rough and that they'd have to contend with heavy rock and extremely steep grades. But they also knew that their big yellow Caterpillar-built machines thrive on the *hard* work. "We have used Cat equipment for 16 years," comments Murray Gray, vice-president and general supt., "and think it's tops for long life and economy. We also like the service we get from our Caterpillar Dealer."

The D9 is the "big boy" of the Cat Diesel Tractor line. Put the power-packed D9 with 320 HP available at its flywheel behind the 25 cu. yd. heaped-rated DW21-No. 470 Scraper and you've got a road building team that is packed with profit-making power.

Power-boosted controls and excellent visibility make the giant D9 easy to operate. And it's available with torque converter or direct drive with oil clutch. See your Caterpillar Dealer. He'll show you actual performance records of this pro of the pushloaders and explain how it offers greater production at lower cost per yard. He'll give you a demonstration that will prove it on your job. Service? You'll get the best, as well as expertly made Cat parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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LOOK FOR YOUR CATERPILLAR DEALER IN THE YELLOW PAGES

THE D9 PUSHLOADS BIGGER LOADS FASTER

Caterpillar DW20 (Series E) Tractor with No. 456 LOWBOWL Scraper is pushloaded by a D9 Tractor equipped with a pushcup. With eight other DW20s it is working on construction of runways, taxiways and other facilities at Bergstrom A.F.B., near Austin, Texas. Altogether, the DW20s are getting up to 20,500 cu. yd. in a 20-hour working day on hauls of 1 to 2½ miles round trip.

Job report on Bergstrom

Nine DW20 Tractors and 17 other pieces of CAT-built equipment are at work on this 2,370,000 cu. yd. project.

Near Austin, Texas, the H. B. Zachry Company is building runways, taxiways and other facilities for the new Bergstrom Air Force Base. This is a big operation—2,370,000 cu. yd. of excavation. In addition, it calls for 300,000 yd. of select base material and 503,000 yd. of concrete pavement. The runways are 12,250 feet long, 300 feet wide.

Work started in April, 1957, and is being handled by nine DW20s (Series E) with No. 456 LOWBOWL Scrapers, two D9 Tractors, six D8s, two D7s and seven No. 12 Motor Graders.

The DW20s are getting up to 20,500 cu. yd. in a 20-hour working day. Rough material, too—clay, limestone conglomerate, shale and black gumbo. Round-trip hauls have varied from 1 to 2½ miles.

Caterpillar D8 Tractor pulling a disk harrow and a D8 pulling a sheepsfoot roller are among many pieces of Caterpillar-built equipment working on runway construction. The D8s feature dependable Cat Engines, operator-convenient, power-boosted controls and built-in quality for long life.

Seven No. 12 Motor Graders level fill on runways in preparation for base. Performance records show Cat-built machines are the most economical to own and operate in the long run.

A. F. B. construction

Now a new DW20 (Series F) Tractor is available. It features the Cat Super-Turbo Engine that provides 320 HP (maximum output) . . . 28% torque rise . . . top speed of 35.8 MPH! Results: faster cycles, greater production and more profit —*for you.*

Get the full story on efficient, economical Caterpillar-built earthmovers from your Caterpillar Dealer. He'll demonstrate right on your job, give you expert advice. After you buy, it becomes his personal responsibility to keep your machines *at work* by providing prompt service and quality Caterpillar parts if needed.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

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STOODY COMPANY
11902 East Slauson Avenue
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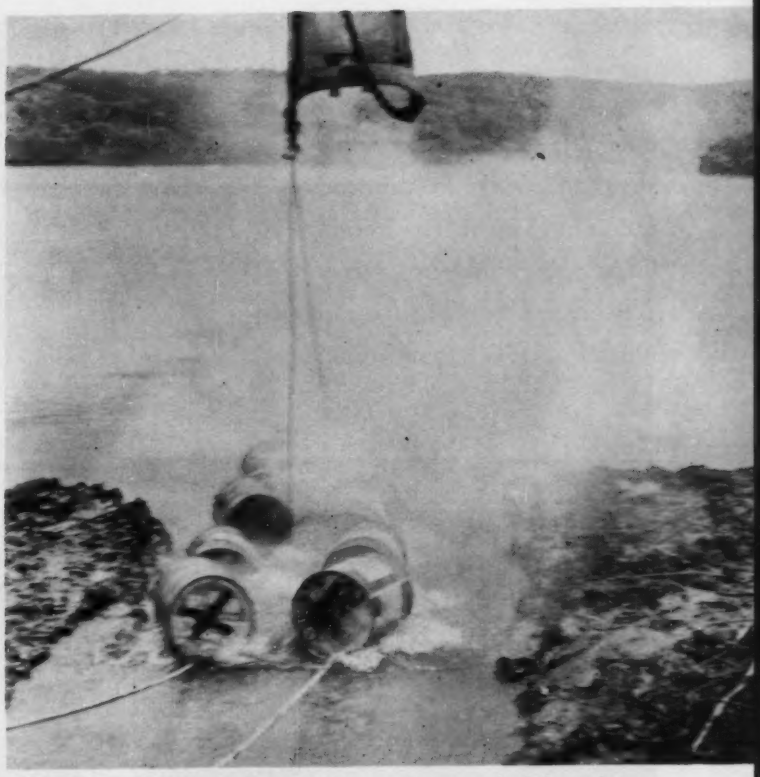
PREPARING THE CHARGE—Crew wraps strand of Primacord around straps holding drums to pipe.



FIRING THE CHARGE—Setting off the Primacord severs each of the steel straps simultaneously, allows the pipeline to settle evenly to the bottom of the lake.

Blast Places Pipeline in Lake

A STRAND of Primacord, steel strapping, and some old oil drums are all it takes to lower a heavy pipeline through 26 ft of water to the bottom of a lake the way Will Paige Howrigan of Swanton, Vt., does the job.

Howrigan held a subcontract to place the intake structure of a pipeline that will supply water for the city of Montpelier, Vt. The intake line extends 500 ft into the lake.

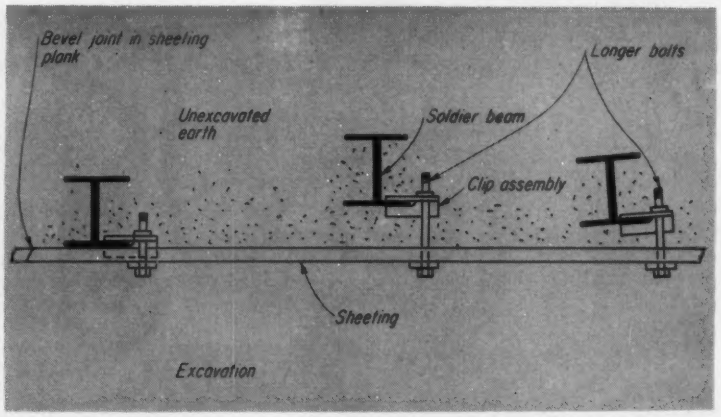
To each 18-ft length of 24-in. cast iron pipe Howrigan fastened four pairs of empty oil drums with steel strapping. Then, the mechanical joints were made up until the entire line was assembled on the shore.

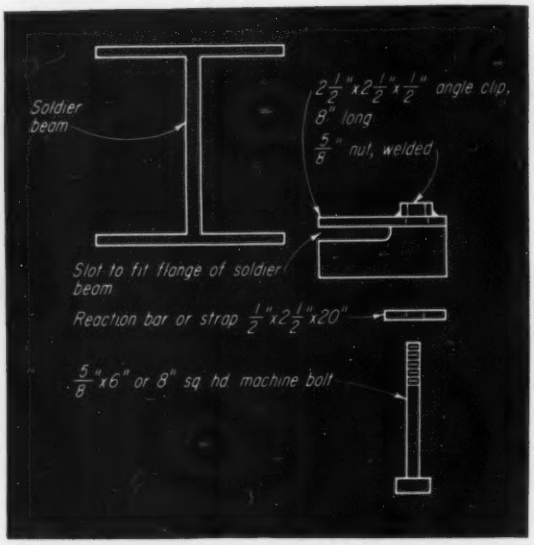
The contractor's floating equipment pulled the line into the lake, and a crew looped a continuous strand of Primacord around each of the steel straps. Howrigan carefully aligned the pipeline, then set off the Primacord which broke the steel straps and allowed the pipeline to settle to the bottom.

The entire pipeline includes approximately 15,000 ft of U.S. mechanical-joint cast iron pipe. General contractor was Samuel Aceto & Co. of Portland, Me.

AFTER THE EXPLOSION—Oil drums floating away to each side outline the position of the sunken pipeline. Intake end is 500 ft from shore in water 26 ft deep.

Key to versatile system is a clip assembly that holds sheeting planks to exposed face of driven soldier beam. Clips and planks are easily placed and readily salvaged while backfilling foundation.




Soldier beam
2½" x 2½" x ½" angle clip, 8" long
⅝" nut, welded
Slot to fit flange of soldier beam
Reaction bar or strap ½" x 2½" x 20"
⅝" x 6" or 8" sq. hd. machine bolt

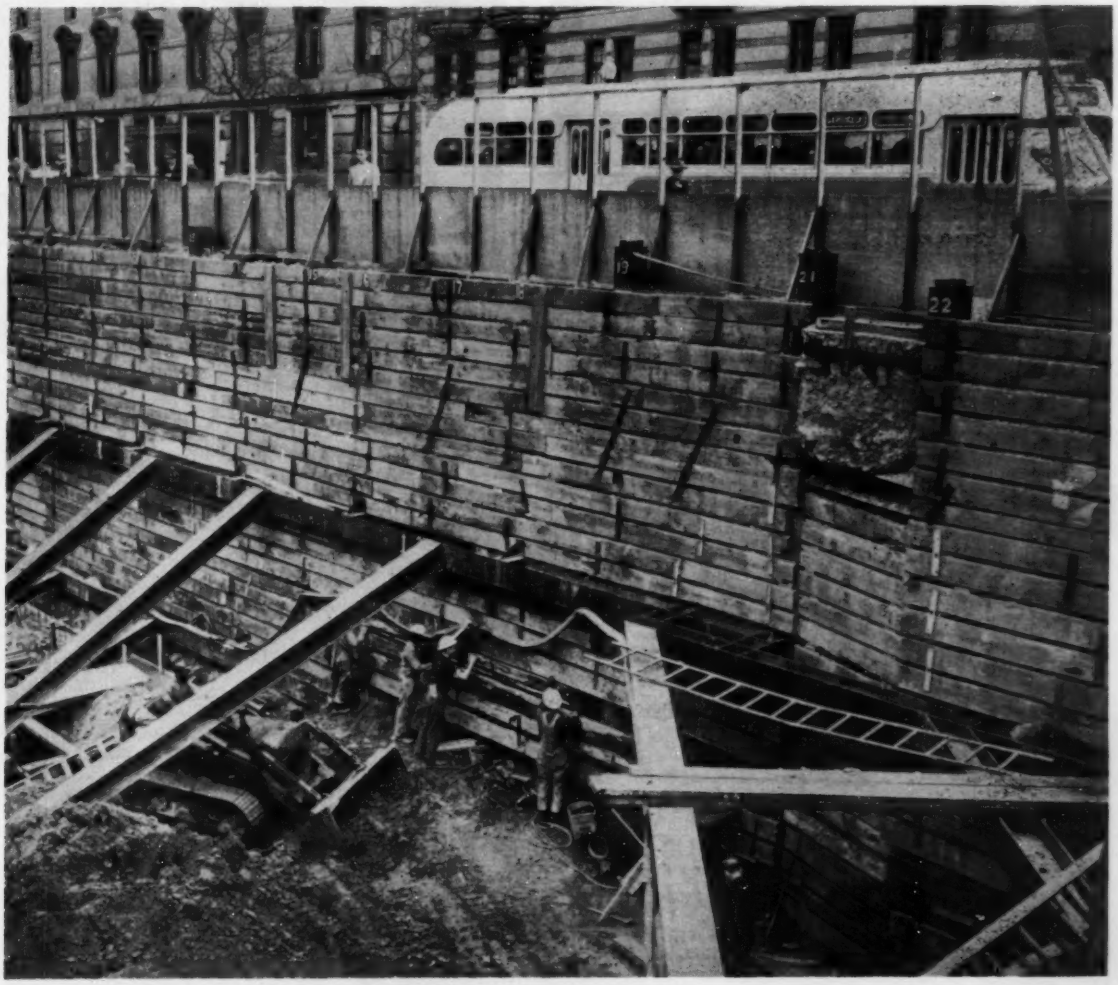
CLIP COMPONENTS—Assembly is driven on to flange, planks are placed, and bolt is tightened with ratchet wrench (right). Above worker's head is wale of bracing system.

New Sheeting Method Saves

A COMMON WAY to protect deep foundation excavations is to drive spaced soldier-beam piles around the site, then place horizontal wood sheeting behind their flanges as the hole deepens. Now New York contractors Coakley & Booth, Inc., have devised a new method whose key is a simple steel clip. Slipped over the exposed flange of the soldier, the clip assembly holds sheeting planks right against the flange face, establishing solid contact between the sheeting and the earth wall between the beams.

This improved scheme has many time-saving and cost-cutting advantages:

- It virtually eliminates costly hand excavation. Because the sheeting planks are fastened to the face of the soldier beams, digging behind the flanges and between adjacent soldiers is not necessary. Practically all berm excavation can be by machine.
- Eliminating excavation behind the flange line also cuts drastically the tedious and expensive back-packing behind the sheeting, which must be done by hand.
- Long random-length plank is used, generally spanning two or more bays. This eliminates wasteful and costly cutting and framing required when sheeting goes behind the flanges. In addition, through continuity, the longer planks add strength to the entire system.
- The clip itself acts as a spacer between adjacent rows of planking. No separate spacer blocks are required as with the conventional sheeting method.
- Time studies indicate that even inexperienced crews, with no increase in manpower or equipment, can sheet an area almost twice as fast as formerly. Thus they do not interfere with berm excavation, which can proceed as fast as the machines can work.
- Sheeting planks can be removed easily at any time for inspection behind them by loosening the clip assembly. And when backfilling between foundation



CLEANLY SHEETED HOLE—New system protects 40-ft foundation excavation in Washington. Old system (Bay 21-22 offset below manhole) has planks set behind soldier flanges.

Time, Money, Material

wall and sheeting begins, planks and clips are virtually 100% salvageable.

The scheme that gives these impressive advantages is called the Booth Contact Sheeting Method. Coakley & Booth's President Weldon S. Booth invented it. And Master Mechanic Tom Coakley's lengthy trials with various fasteners resulted in the simple clip assembly.

C&B currently are using contact sheeting to protect a 40-ft-deep foundation excavation for the Morechi Building in Washington, D. C. This particular job offered all the ordinary predictable challenges of deep excavation to test the system's strength, economy, and flexibility. In addition it had numerous unpredictables such as severe weather, extra-heavy street traffic, and difficult soldier-beam driving. Despite these tough conditions, the method has proved entirely safe, and a real time and money saver.

Although C&B developed numerous devices for fastening sheeting to the soldier-beam face, the type most adaptable to the Washington job consists of an angle clip, a retainer bolt, and a reaction bar.

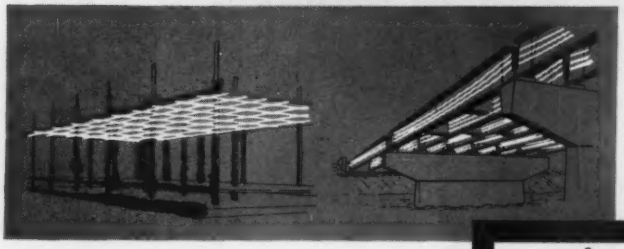
The clip is an 8-in. length of 2½x2½x½-in. mild steel angle. One leg is slotted for an easy driving fit over the flanges of a 12BP53 soldier beam (which were driven on 7½-ft centers around the three sides of the lot which were to be sheeted). The other leg of the clip is bored and has a nut welded on behind to receive the threaded end of the retainer bolt. This is a standard ⅝-in.-dia square-head machine bolt 6 or 8 in. long that passes through the reaction bar. The reaction bar is a flat ½x2½-in. steel strap 20 in. long, which holds sheeting planks to the face of the soldier.

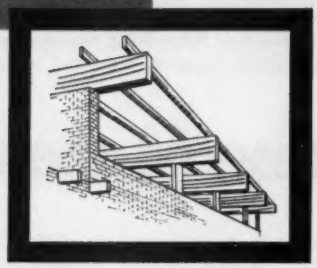
Since it is not uncommon for the soldiers to twist or drive off line, left and right-hand clip angles and various length bolts give a choice of proper combination for a good connection.

Contact sheeting calls for no special excavation techniques. When berm removal around the edge of the lot begins, tractor shovels, clamshells, or power

IN THE HOLE—Planks are set fast (left photo). System uses random lengths of planking, generally spanning two or more bays. Bevelled joints are staggered.

PATTERNS OF TOMORROW TODAY





Tomorrow's patterns for gracefully functional structures, combining great strength with a minimum of mass, are taking shape today throughout the world.

Their design and construction characteristics are made possible, in large part, through widespread developments in concrete prestressing techniques and methods.

The Prescon System of post-tensioning is proving its worth in buildings, bridges, reservoirs and in many other structures employing prestressed concrete.

FOR THE CONTRACTOR it means tendons delivered to the job site, completely assembled, clearly identified and ready for the forms; a Prescon representative to instruct his men in placing and stressing the tendons, using stressing equipment—provided by Prescon.

FOR THE ARCHITECT AND CONSULTING ENGINEER it means assistance with design and engineering when needed; and assurance that Prescon can be specified with confidence.

FOR THE OWNER it means graceful, functional construction with maximum space utilization, and long spans with minimum material usage.

Write for new folder giving complete, detailed information including examples of structures using The Prescon System.

THE PRESCON CORPORATION

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MEMBER OF THE PRESTRESSED CONCRETE INSTITUTE

IMPROVED SHEETING . . .
continued

shovels dig parallel to the wall line. They cut away the berm to a depth of 1 to 6 ft (depending on soil conditions) and for as great a distance along the wall as is unobstructed.

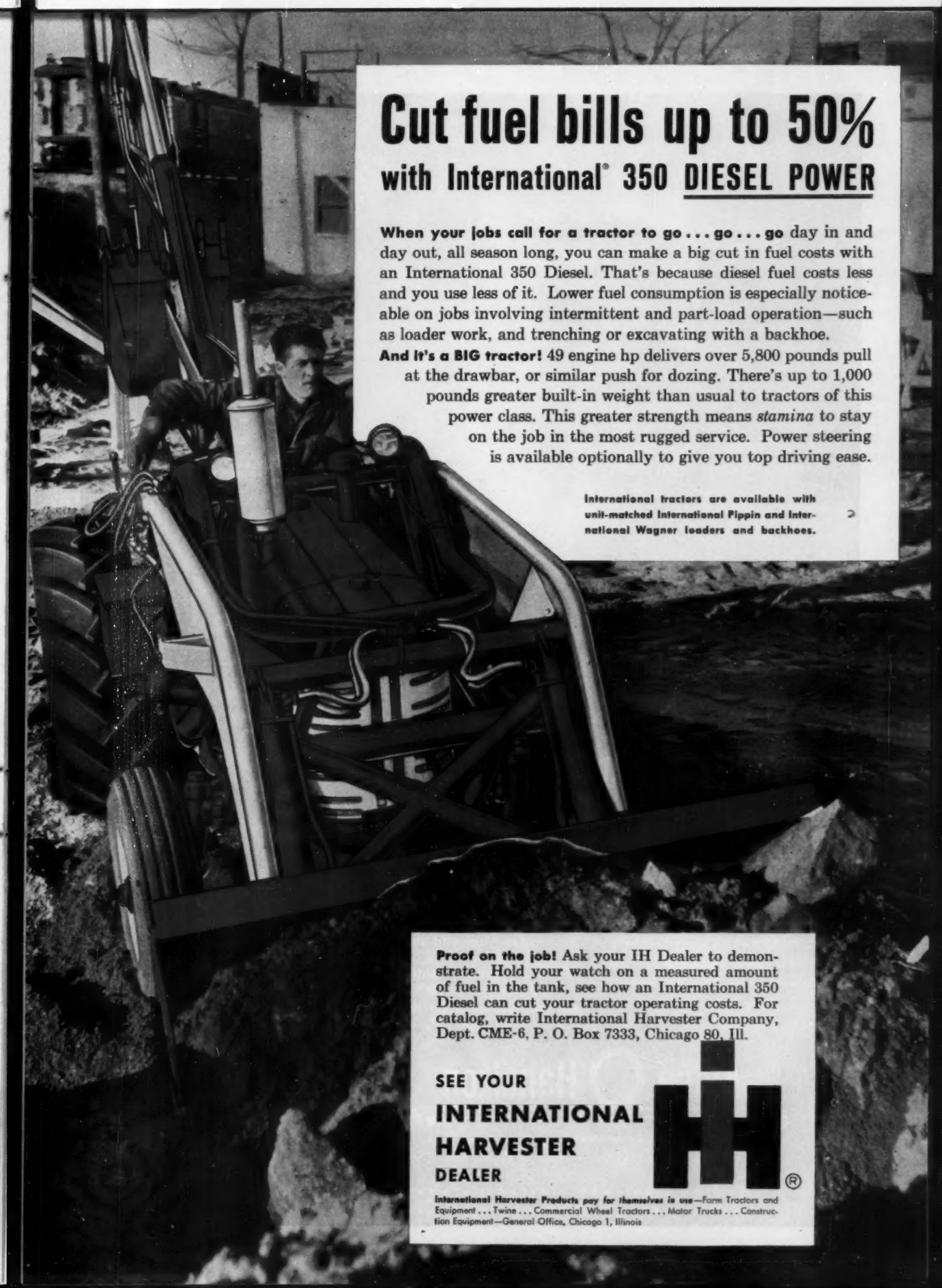
When the faces of several soldier beams are exposed to a depth of one or more sheeting planks, sheeting begins. Most efficient placement occurs when the planks can be installed in several pairs on a section of wall 4 to 6 ft high, kept prepared ahead of the sheeting crews. If ground stability does not permit such a depth of cut, however, sheeting plank can be installed one or two rows at a time.

Where soil is right, sheeting is carried out from the bottom of cut, up. A story pole, or spacing jig, locates the lowest row of clips. Then the clips are driven onto the soldier-beam flanges, retainer bars and bolts are loosely attached, and sheeting begins.

Each row of clips holds two rows of planks and provides a 2-in. space, or louver, between them. The 40-ft depth of the Washington cut calls for 3x10-in. planks. They are random length, selected only so joints falling between soldier beams will be staggered in different bays up the wall.

Ends of the sheeting planks are bevel-cut and placed so the bevel of the plank closest to the clip overlaps the bevel of the next. Two or three 16d or 20d nails secure the joint. Since most of the plank is continuous over two or three bays, the sheeting system is

continued on page 107



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with International® 350 DIESEL POWER

When your jobs call for a tractor to go . . . go . . . go day in and day out, all season long, you can make a big cut in fuel costs with an International 350 Diesel. That's because diesel fuel costs less and you use less of it. Lower fuel consumption is especially noticeable on jobs involving intermittent and part-load operation—such as loader work, and trenching or excavating with a backhoe.

And it's a BIG tractor! 49 engine hp delivers over 5,800 pounds pull at the drawbar, or similar push for dozing. There's up to 1,000 pounds greater built-in weight than usual to tractors of this power class. This greater strength means *stamina* to stay on the job in the most rugged service. Power steering is available optionally to give you top driving ease.

International tractors are available with unit-matched International Pippin and International Wagner loaders and backhoes.

Proof on the job! Ask your IH Dealer to demonstrate. Hold your watch on a measured amount of fuel in the tank, see how an International 350 Diesel can cut your tractor operating costs. For catalog, write International Harvester Company, Dept. CME-6, P. O. Box 7333, Chicago 80, Ill.

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International Harvester Products *pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

Iron ball plummets 25 ft., slams Acme-Hamilton air hose 25 times!

Not the slightest sign of damage to cover, carcass or tube could be found after a 2-ton iron ball was repeatedly dropped on the same spot of this rugged air hose. This is actual proof that you can specify an air hose that will not fail when subjected to very severe service.

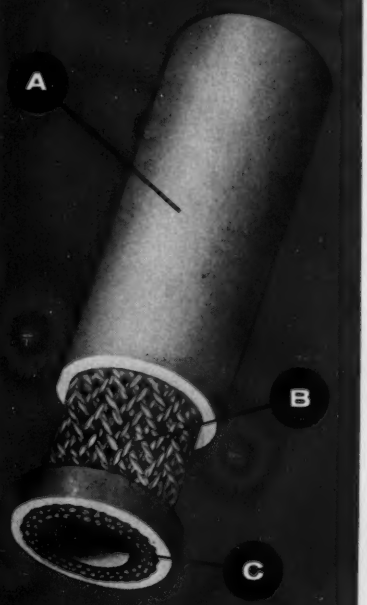
Why this hose is so rugged:

(A) Abrasion resistant red cover is immune to cutting and abrasion.

(B) Two plies of Hi-Tensile braided yarn add strength . . . flexibility.

(C) Neoprene tube resists heat and oil; won't flake or harden.

Ask your distributor for this air hose, or write Dept. 107.



Acme Hamilton

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IMPROVED SHEETING . . . continued from page 104

stiffened and makes for a stronger protective wall than with planks framed behind the soldier flanges.

Throughout the job, there has been no failure of clips to hold, nor any sign of physical weakness in the system. The job also shows the Booth contact method to be adaptable to special conditions.

Twister or off-line soldiers can be handled by proper selection of clip components. If short offsets in a wall line can be handled easier by conventional sheeting, the contact planks simply are terminated on one soldier beam and started again on the next. When properly applied, the contact system can save considerable time and money.

Owner of the Morechi Building is the International Hod Carriers, Building and Common Labor Union of America. Hegeman-Harris Co., Inc., are general contractors, and Maurer & Hartzell are excavating subs. For Coakley & Booth, Inc, Mike McGrail is field superintendent, and Mel Brotherton is pile foreman.

IN THE DIRT — Allis-Chalmers tractor shovel handles berm excavation so sheeting planks can be placed. Excavation for new sheeting method is same as for ordinary one.

This guy is a fast operator

. . . look at his backhoe!

It's the all-new *SHAWNEE 88*. He can knock off for a smoke because he's long on time. Earth has never been trenched faster!

Buy-wise and bid-wise, the *SHAWNEE 88* gives you a profit edge. It's the one backhoe built for a fast operator. Plenty of digging power. No sweat, either. The *SHAWNEE 88* is smooth and fast — the fastest backhoe of them all. Ever see one styled to beat it?

It sits comfortably, handles perfectly, and gives you no trouble. Mounts on any tractor you choose. Try the *SHAWNEE 88*. Try it and you'll buy it. *It even costs less.*

The SHAWNEE 88 digs 12', dumps 9'9", reaches 16'6" and has 180° uninterrupted swing. "Hidden cylinder" activates quick-detach, all-purpose bucket.

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ENGINEER'S FIELD REPORT

PRODUCT: RPM MULTI-SERVICE GEAR LUBRICANT

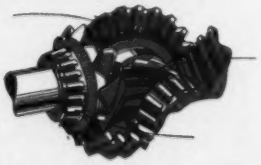
FIRM: YAKIMA CEMENT PRODUCTS CO. Yakima, Washington

No scoring or pitting of differential gears in 6 years

In Six Years of using RPM Multi-Service Gear Lubricant, not one differential in the entire 20-truck fleet of Yakima Cement Products Co. has shown any scoring or pitting of gear teeth. Despite grueling service delivering ready-mix concrete and other building materials to off-highway construction sites, lubricant has never failed to do its job. Firm's six-wheel-drive trucks supply sand, gravel, ready-mix concrete, and fabricated concrete products to projects within 100 miles of Yakima, Washington.

Ready-Mix Truck like rest of firm's vehicles, is rebuilt Army surplus 2½-3 ton International. "In the fleet of 21 six-wheel-drive trucks, we have never had a transmission or differential failure due to lubrication, despite our severe operating conditions since we started using RPM Multi-Service Gear Lubricant," says firm's chief mechanic, Art Weber. This lubricant is also used in all mixer drive gear boxes.

Why RPM Multi-Service Gear Lubricant prevents wear



- Special compound forms protective lubricating coating on gears by chemical reaction with metal...resists rubbing action of hypoid gear teeth.
- Withstands extreme temperatures and pressures...highly oxidation resistant...keeps bearings and gears cool.
- Inhibitors resist rusting, stop foaming...lubricates integral bearings...will not separate.

For More Information or field help with any fuel or lubrication problem, contact representative of any company listed or write direct.

AUTOMOTIVE LUBRICANTS RPM

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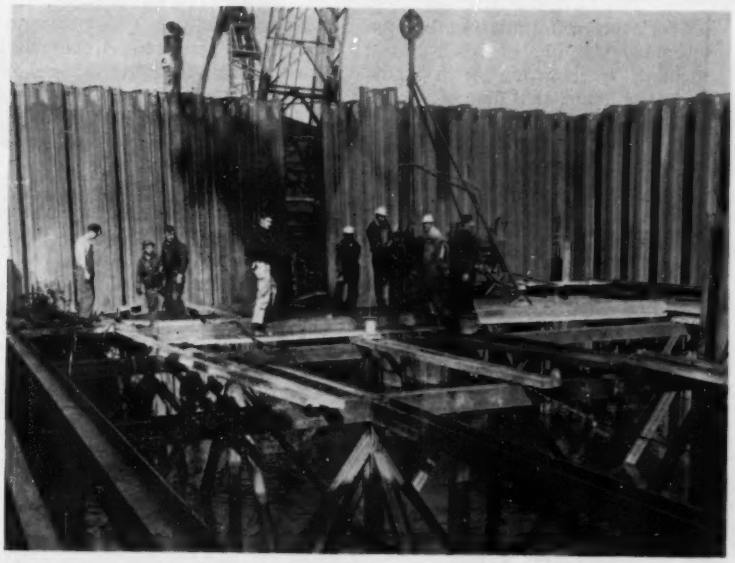
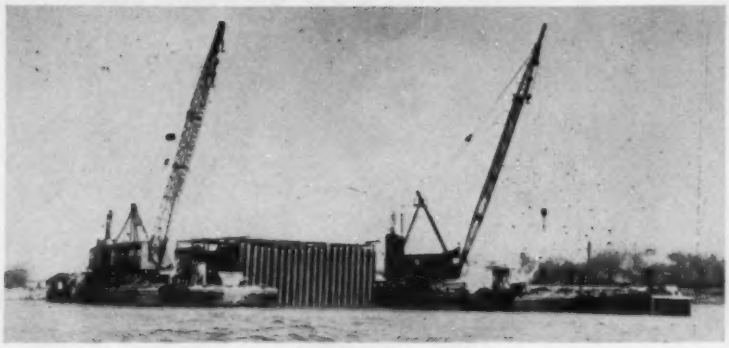
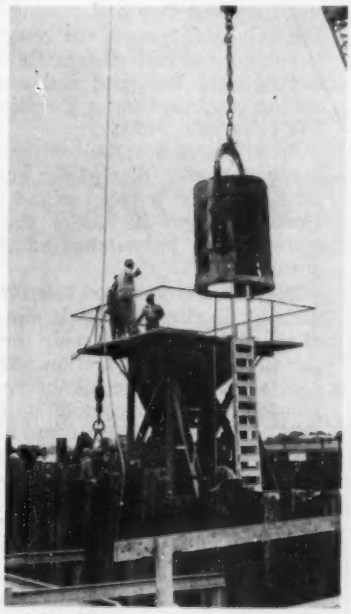


TEMPLET — Structural steel framework braces sheet piling from inside cofferdam while waste fill holds piling from outside.

Sand, gravel and clay—that's what Merritt-Chapman & Scott Corp. expected to dig up from the St. Lawrence River bottom before building foundations for the Ogdensburg Bridge. Instead, the contractor has to blast out a very hard glacial till.



COFFERDAM—Two derrick boats place piling, clamshell overburden, and handle concrete, around the cofferdam area.



TREMIE SEAL—Bucket unloads concrete into tremie pipe to seal cofferdam bottom. Concrete is brought halfway up cofferdam.

Sheeted Cofferdams Toe into Bedrock

BUILDING PIER FOUNDATIONS for the $20-million Ogdensburg International Bridge over the St. Lawrence River is proving one of the tougher subaqueous jobs undertaken by Merritt-Chapman & Scott Corp.

MC&S's $6.5 million of substructure work calls for the construction of 28 water piers for the 5-span suspension bridge that will connect Ogdensburg, N.Y., with Johnstown, Ontario. Six suspension span pier foundations are rectangular, measuring from 59x73 ft to 30x96 ft. The piers for the end spans are of circular construction with diameters ranging from 38 to 43 ft.

Test borings before the start of the job showed bed rock 70 ft below mean low water. Overburden showed up as primarily sand, gravel, and clay starting at depths of from 5½ ft to 45 ft below mean low water.

On the results of the test borings, the job appeared routine. The contractor simply planned to drive sheet piling cofferdams for each pier, dredge out the cofferdam core to rock, then pour concrete.

However, MC&S' initial operation—flotation dredging—disclosed that material was much more difficult to excavate than borings indicated. Overburden proved to be like glacial till and required blasting before clamshells could work efficiently.

continued on next page

So the contractor decided that the best way to build the foundations would be to pre-dredge to rock before installing cofferdams. This involved first blasting open a pit for each pier foundation down to bedrock without benefit of sheet piling. Sheet piles then would be driven around a supporting steel frame to bedrock. Back-filling around sheeting with previously blasted material would hold steel in place and permit the pouring of tremie seals.

Work on a foundation begins with the driving of blast holes through overburden with gads operated from the derrick boat. The gads—solid steel shafts set in 8 to 10-in. dia pipe—are driven with 10B3 hammer from the derrick boat. The contractor drives these holes to depths of 10 to 20 ft on a 5-ft pattern. The shaft then is retracted from the pipe, and each hole is loaded through the pipe with 50 lb of Hercules powder.

After blasting, the loosened material is removed by clamshell. Blasting and dredging is repeated until bedrock is reached. Keys 2 ft deep then are drilled and blasted out to cover approximately 25% of the cofferdam area.

Huge 90 to 120-ton frames serve both as guides for driving piles and as braces that hold piles during concreting. These are made up of structural steel to the dimensions of the finished pier.

Two derrick boats working together lift a frame and lower it into the pier hole. H-beam spud piles serve as support and alignment corrections for the frame.

One of the derricks then places Bethlehem's MZ-32 interlocking sheet piles around the frame. The second derrick picks up fractured rock dumped in nearby water and backfills behind the sheet piling.

A tremie seal is placed continuously to a point sufficient to over the hydrostatic head within the cofferdam.

Concrete is mixed on shore in two Worthington-Ransome 35-S dual-drum tunnel mixers at a rate of 100 yd per hr. Mixers have feed chutes that hydraulically discharge concrete into 4-yd buckets mounted on small tug-pulled barges. Barges haul the concrete to the cofferdams where the derricks handle the buckets.

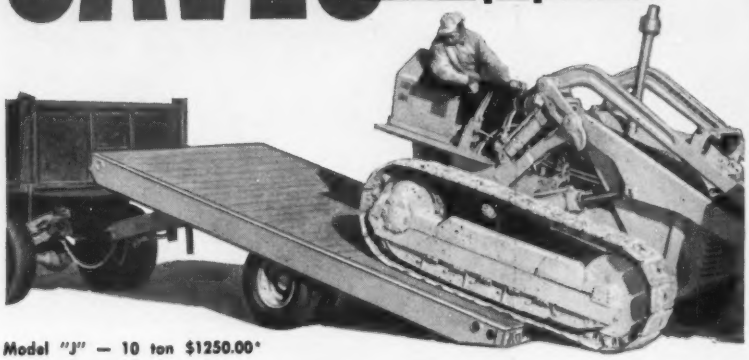
Once the tremie is in, the cofferdam is dewatered and the portions of the frame still exposed are cut free and removed. The salvaged frames are reused in subsequent cofferdams. Reinforcing steel is placed and concreting continued to an elevation 5 ft below the water.

From about 5 ft below mean low water, each pier of the suspension section is faced with 5 to 7 courses of granite blocks. Concrete then is poured behind the granite.

Despite adverse weather and difficult digging, MC&S is ahead of schedule on the six main piers for the suspension section. The contractor will have all the suspension piers near completion by July of this year, five months ahead of contract requirements.

R. I. Senn is project manager, and Homer Wilkes is general superintendent. Construction of the substructure is under the general supervision of Frank R. Creedon, MC&S construction manager. Modjeski & Masters, Harrisburg, Pa., are the design and contracting engineers.

SAVES..time between jobs! on equipment!



Model "J" — 10 ton $1250.00*

MILLER Tilt-Tops' drive on loading!

Miller's big, oak decked platforms swing down . . . merge with the ground for the easiest . . . fastest *drive on* loading you'll find. With a MILLER Tilt-Top there's no need to bother with skids, cribbing or jacks . . . ONE man can tilt, drive on a rig . . . be off to the next job in less than TWO minutes! This faster, easier loading, plus easier backing and close quarter maneuverability . . . saves the bother and expense of larger more cumbersome trailers . . . so often impractical to use for "fast jump", job-to-job hauling. And MILLER Tilt-Tops' fast between job loading and hauling can often let you shuttle rigs back and forth between simultaneous job operations, help you save duplicating expensive equipment.

Whatever you haul . . . front end loaders, shovels, pavers, rollers or trenchers, there's a MILLER model to handle any rig from 4 to 15 tons, easier! faster! See these time saving, production boosting Tilt-Tops at your MILLER distributor today.

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Brakes and optional equipment extra
*Plus 10% Federal Tax

See your MILLER distributor or write for FREE literature to:

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This Cedarapids PORTABLE PRIMARY

12 YEARS ON THE JOB and still producing over 240 TPH with 60% to 70% crushing

THIS Cedarapids 2540 Portable Primary has shrugged off 12 years of rugged service in hard Wisconsin gravel and is still going strong. Last year, with a Cedarapids Master Tandem, it crushed around 205,000 tons, averaging 243 tons of ¾" minus per hour, with 60% to 70% crushing. After a Cedarapids Vibrating Grizzly was installed, over 200,000 tons went through the crusher without the jaws being turned.

Performance like this proves why aggregate producers *expect more* from Cedarapids — *they get it*, in greater production, longer life, higher profits. And this is especially true of Cedarapids Portable Primaries which must handle the heaviest crushing loads.

A Cedarapids Portable Primary gives you so many other profit-advantages... you can crush 100% of pit run material; operate in pits considered exhausted or unworkable. You can turn your Cedarapids portable gravel plant, or any good make secondary, into a high capacity rock plant; work closer to the job to cut hauling costs. With a Cedarapids Portable Primary, you get the capacity and flexibility to handle a wider range of contracts.

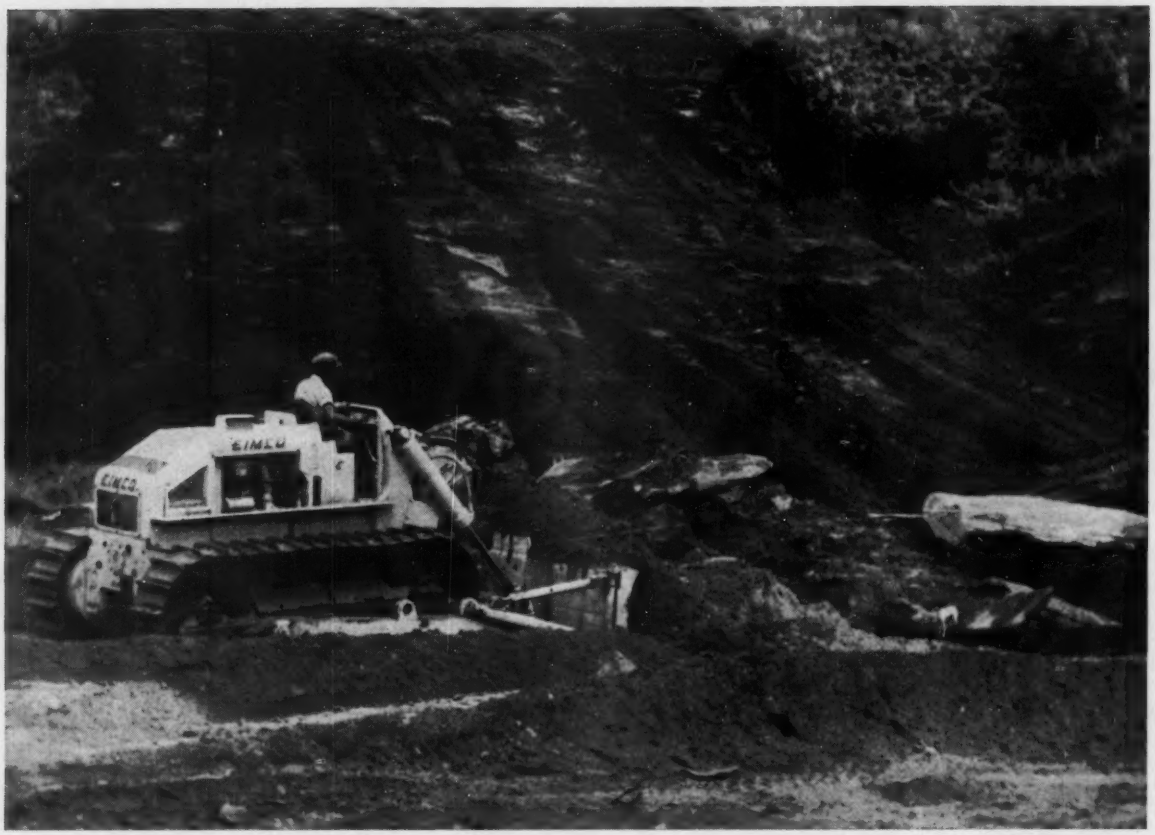
In the complete Cedarapids line there are 17 sizes and types of Portable Primaries to meet every condition. Cedarapids Vibrating Grizzlies, Scalping Screens, and heavy-duty feeders like the Ground-Level Feeder shown above, are available to increase production and profit still more.

Your Cedarapids Dealer can help you choose the Portable Primary you need. See him today.

Cedarapids
Built by IOWA

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.



TOMORROWS BULLDOZER–TODAY!

"THE BULLDOZER OF THE FUTURE" this is the way one Road Dept. official described the Eimco 105 when he saw it operate on competitive tractor tests. Here, once again, the Eimco 105 Dozer has demonstrated superiority over conventional type tractors. In job after job, the 105 consistently proves that its simplicity of operation, smooth power flow, visibility, maneuverability and reduction in operator fatigue is the difference between marginal production and profitable production.

The work site consisted of a steep incline with rock outcropping in big slabs. The bottom ends of the rocks were deeply embedded and required maximum tractor effort to remove them.

Bulldozing down the slopes, the torque converter drive of the 105 enabled it to pick up a capacity load and move down the slope ahead of the competitive tractors with their outmoded conventional type drives.

Throughout the test — straight bulldozing, removing rocks and maneuvering — the 105 managed everything that came its way and did it with the least amount of operator effort. In direct contrast, the competitive tractor operators were constantly clutching, changing gears and braking to accomplish their tasks.

Eimco's Unidrive constant mesh transmission gives variable speed independent track control without clutching and shifting. Let us demonstrate this tractor.

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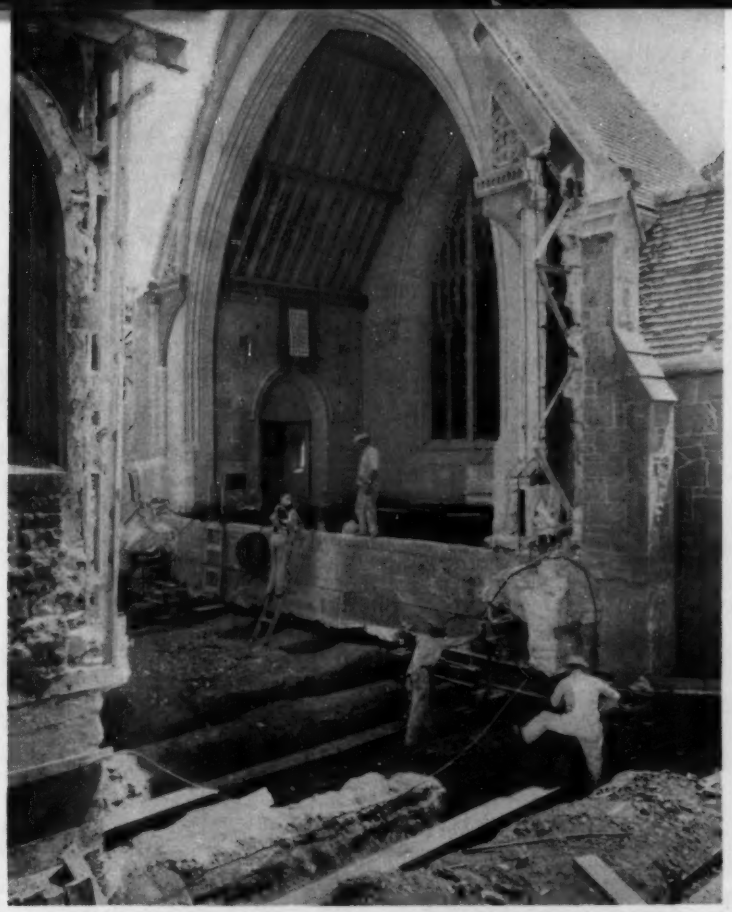


A HOUSE DIVIDED—Its new steel substructure sliding on four I-beam rails, half of church nears end of 30-ft trip. Contractor took 1½ days to move the 400-ton section.

Here's an unusual way to enlarge a building— saw it in half, spread the halves, and add a new center section.

PUSHING POWER—Four 100-ton hydraulic rams push against cleats clamped to rails.

Church Expands Like a Telescope

ONE WAY TO ENLARGE a building is to saw it in half, push the halves apart, and build a new section in the middle. It's not the usual method, but contractor D. J. & T. Sullivan of San Francisco pulled it off without a hitch.

The building was St. Matthew's Episcopal Church in San Mateo, Calif. To increase seating capacity, plans called for two new 15-ft bays in the middle of the church. A specialist in moving structures, Sullivan had to push one of the sawed off halves 30 ft to make room for the new central portion.

To make sure no damage to the structure resulted, Sullivan installed heavy bracing to reinforce both sections. He built a rigid steel supporting frame under the section to be moved to prevent serious damage during the journey. Underneath this new steel foundation he dug trenches and laid four steel I-beams for rails on which to slide the 400-ton half-building to its new position. Concrete piles sunk 25 ft supported the steel rails.

Jacking

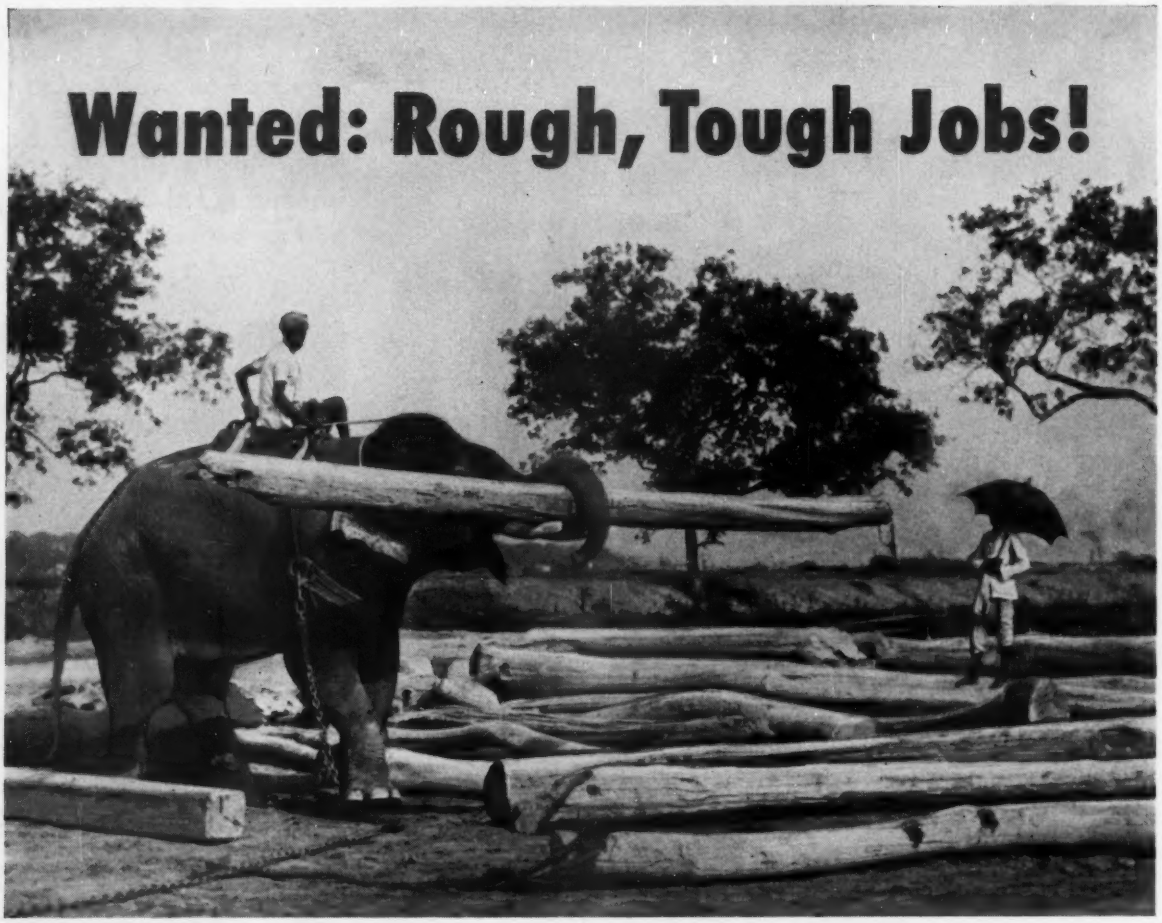
A 100-ton Simplex hydraulic ram mounted on top of each rail supplied the motive force. An electric pump powered the rams. Control valves and gauges at the pump regulated the delicate operation. Pressure on each ram was kept as nearly equal as possible. A workman stationed at each ram called off the amount of travel in ¼-in. increments to maintain uniform movement.

The rams pushed against cleats anchored to the steel rails. The rams were retracted after reaching their full 10-in. extension, and the cleats moved up for the next push. The contractor advanced the cleats two at a time, leaving the other two in position to maintain pressure and prevent slippage. Each cleat was moved ahead in this leapfrog fashion 36 times altogether.

The trip took 1½ days, including a short interruption to remove a partially buried obstacle. Average rate of travel was 5 ft per hr.

There was no damage to the building as a result of the move. Floor levels of the two halves lined up perfectly across the 30-ft gap. The new section preserves the building's architectural unity.

Wanted: Rough, Tough Jobs!



Vesuvius "X" Gear Compounds help handle the toughest loads under the roughest conditions on gears, wire rope and cables.

Vesuvius "X" Gear Compounds are specially processed leaded compounds widely known as the "friend of every road contractor." They are designed for use on medium and slow speed, large size, exposed and enclosed industrial gears, wire ropes and cables.

Vesuvius "X" Gear Compounds are made to take care of the toughest loads under the roughest conditions of heat and water. They are heat resistant. And they are uniquely compounded so that they are also highly water resistant. Even in cold weather they don't crack or peel off.

Although Vesuvius "X" Gear Compounds are highly water resistant and tenacious, they are best applied to clean dry surfaces.

Vesuvius "X" Gear Compounds vary in consistency from complete fluidity in the lighter grades to heavy solids that must be heated for application in the heavier grades.

VESUVIUS "X" GEAR COMPOUNDS

When you want top performance you want Amoco Lubricants

American Oil Company, 555 Fifth Avenue, New York 17, N. Y.

AMOCO ALSO PRESENTS...

Amoco HDX Oil
Amoco Superior Diesel Oils, S-1, S-2, S-3
Permalube Gear Oil
Perma-Flo Oils
Permalube All-Purpose Grease No. 158
Super Permalube Motor Oil

Before he started to build an Ohio River lock this contractor relocated a highway, built a 1,200-ft. cofferdam, and laid out a big construction plant.

POURING CONCRETE—Inside the 1,200-ft main lock, cranes place concrete on the walls in 5-ft lifts. Trucks haul the concrete in 2 and 4-yd buckets from plant across highway.

Good Layout Makes Big Job Easy

MIXING 400,000 cu yd of concrete, hauling it across a main highway, and placing it on the bed of the Ohio River to form a lock is rugged construction work. But Merritt-Chapman & Scott Corp. is making it look routine. The secret is thorough advance planning and an efficient construction plant layout on the site.

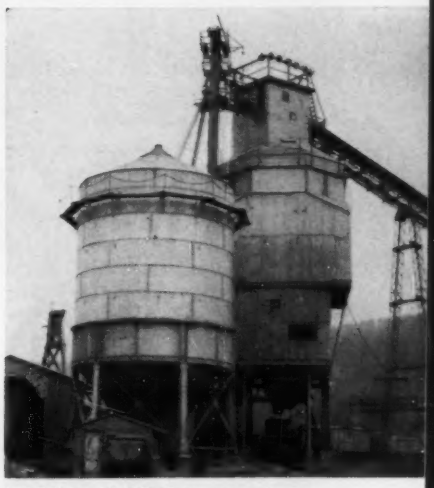
The job is an improvement of the Ohio River navigation system. MC&S has a $16-million contract with the Corps of Engineers to build a 1,200-ft main lock and a 600-ft auxiliary lock on the river about 40 mi north of Wheeling, W. Va. The locks will be part of the New Cumberland Lock and Dam Project.

Winter concreting and spring floods might have caused trouble, but winter is past and to date spring has brought few surprises. The concreting is going well after a slowdown during the coldest part of the winter. Project Manager Jess W. Comer kept a watchful eye on his cofferdam during the high water period but had comparatively little trouble from the river.

MC&S set up their construction plant on the Ohio side of the river. The plant includes a large stockpile area for aggregate, a crushing and screening plant for river gravel, a 150-yd-per-hr concrete plant, and an extensive carpenter shop for form building.

The first construction task was to move the main highway back from the river bank to make room for work on the lock. While they were doing this, they built an access road parallel to the main road so their trucks and machinery would not interfere with traffic. They also put an underpass beneath the highway so machinery could move from plant to lock without crossing the road.

The next move was to build a cofferdam around the lock area. For this they sunk MP-112 sheetpiling 40 ft to bedrock and backed it with a continuous series of 30x40-ft dirt-filled timber cribs. Fairbanks Morse Pomona turbine pumps dewatered the cofferdam and are keeping it dry.



MAKING CONCRETE—Big plant turns out 150 yd per hour round-the-clock.

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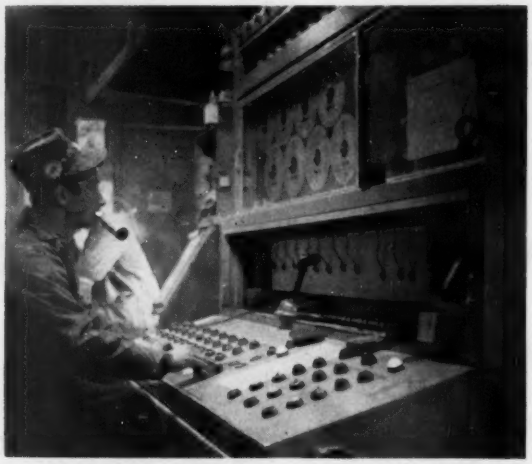
Nine Stockpiles Supply Batch Plant

AGGREGATE FROM QUARRY—Conveyor system sorts four sizes of limestone aggregate plus sand that trucks haul in from quarry.

AGGREGATE FROM RIVER—Crushing and screening plant processes four more sizes of river gravel for concrete in foundations.

FEEDING THE PLANT—Aggregate conveyor from stock piles, and rail line for carloads of bulk cement converge on batch plant.



AUTOMATIC CONTROL—Operator of Johnson 386 system handles batching by pushbutton. Quantities are recorded automatically.

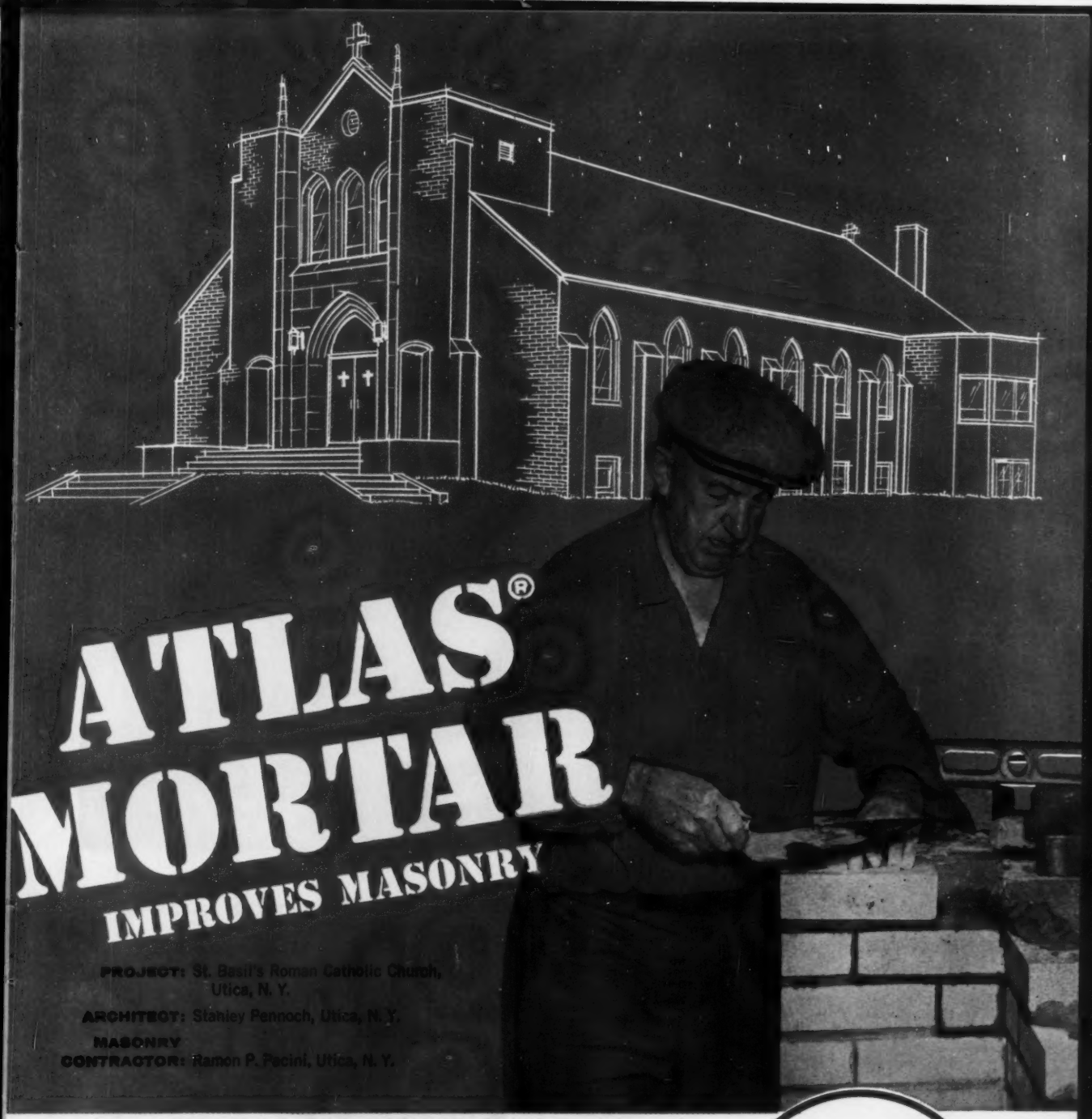
MC&S enclosed an extra working area beyond each end of the cofferdam by pushing earth dikes out into the river. These areas are for construction of guide walls that will extend out from each end of the lock to guide barges into the lock.

The batch plant across the road supplies the 394,000 cu yd of concrete required for the locks. Trucks haul the concrete from plant to lock in 2 and 4-yd buckets. At the lock, truck and crawler cranes handle placing of the concrete.

The concrete plant can produce 150 tph and operates around the clock to keep three shifts busy. It

continued on page 120

CONCRETE DELIVERY—Truck hauls 4-yd bucket from batch plant to lock under bridge specially constructed for main highway. Private road prevents traffic interference.



ATLAS® MORTAR

IMPROVES MASONRY

PROJECT: St. Basil's Roman Catholic Church, Utica, N. Y.

ARCHITECT: Stanley Pennoch, Utica, N. Y.

MASONRY CONTRACTOR: Ramon P. Pecini, Utica, N. Y.

". . . holds its temper . . . extra-smooth and easy to work,"
says Alfred Helland, Masonry Foreman

- To produce serviceable masonry walls, the mortar mix must be plastic — and retain its mixing water.
- Masons on the job consistently confirm that mixes made with ATLAS MORTAR cement strongly resist the suction of porous masonry units. This *water-retention* increases bond strength.
- Quality-controlled manufacture of ATLAS MORTAR masonry cement maintains high product standards, assuring uniform performance and appearance on every project. *(Complies with ASTM and Federal Specifications.)*

Write for your copy of "Build Better Masonry,"
Universal Atlas, 100 Park Avenue, New York 17, N. Y.

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USS
TRADE MARK

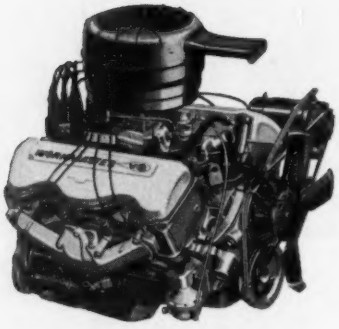
M-71

UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—**UNITED STATES STEEL**

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

CHEVROLET'S new tandems

Unique design advantages . . . special work-whipping features . . . these are the things that make Chevrolet tandem models the trucks best able to do big jobs the way you want them done!



NEWEST BIG-TRUCK POWER

Chevrolet's broad-shouldered six-wheelers are tops for high-profit hauling on the big, tough jobs! Triple-Torque tandem models in Series 80 and 100 are specially engineered to haul king-sized payloads—and keep costs down while doing it! G.V.W.'s go all the way up to 36,000 lbs. And there's plenty of power, too. Standard in 80 Series is the new 175-h.p. Heavy-Duty Super Task-master V8. Its short-stroke design means more pulling power per pound. Chevy's revolutionary new Work-master V8 is standard in Series 100 tandems. With 230 h.p., 348 cubic inches of displacement and new Wedge-Head design, the Workmaster stays and saves on heavy-weight hauling jobs with a new kind of hustle!

CHEVROLET

CHEVROLET

are built to beat big jobs!

SPECIAL DO-THE-JOB FEATURES

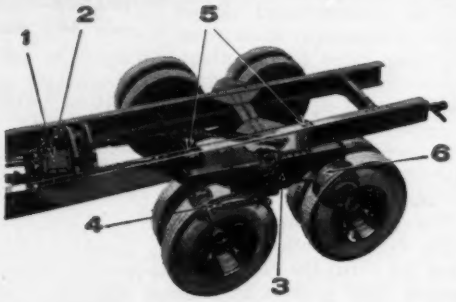
1. Chevrolet's exclusive TRIPLE-TORQUE DRIVE is provided by individual propeller shafts driven by the power divider with integral 3-speed auxiliary transmission.

2. Integral 3-SPEED POWER DIVIDER can be shifted instantly to single axle drive for economy or dual axle drive for full traction on or off the road.

3. The Triple-Torque tandem's articulated WALKING BEAM assures owners of greater ground clearance . . . the utmost flexibility for operation on rough terrain.

4. "TRACKING" WHEELS, because of Chevrolet's rubber-bushed steering torque rods and walking beam ends, stay in alignment on straight roads, follow curves. Increase tire life, driver control.

5. Two built-for-work 15,000-LB.-CAPACITY AXLES with 7.20 to 1 ratios! Choice of front axles . . . 7,000-lb. capacity standard or 9,000-lb. capacity optional at extra cost.



6. BIG TWIN-ACTION BRAKES are designed to last! Extra braking power with heavy-duty Hydrovac power brake. Full-Air or Air-Hydraulic brakes optional at extra cost.

Let your Chevrolet dealer show you these, and the many more exclusive tandem features designed to get your big jobs done quickly, dependably and economically! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

TASK·FORCE TRUCKS

Big Cranes Handle Key Jobs In and Out of Lock

has a Johnson 386 automatic control system that weighs and records any one of 12 possible mixes at the push of a button.

During the coldest part of February, Comer shut down the job for three weeks. For the rest of the winter he poured concrete only when the temperature was above 28 deg.

Two Pantex electro-steam generators supplied heat to the batch plant during the winter. Each had a capacity of 24 boiler hp; together they produced over 1,000,000 Btu per hr.

There are two sources of aggregate. River gravel is acceptable for concrete footings. Concrete for the rest of the structure requires limestone aggregate that is trucked in 35 mi from Carrollton, Ohio.

A separate crushing and screening plant handles the river gravel. The limestone is graded before it arrives and requires no further treatment before mixing.

An extensive aggregate storage area stocks four sizes of river gravel, four sizes of limestone, and one of sand—nine stockpiles in all. An underground tunnel conveyor moves aggregate from any of these piles to the plant.

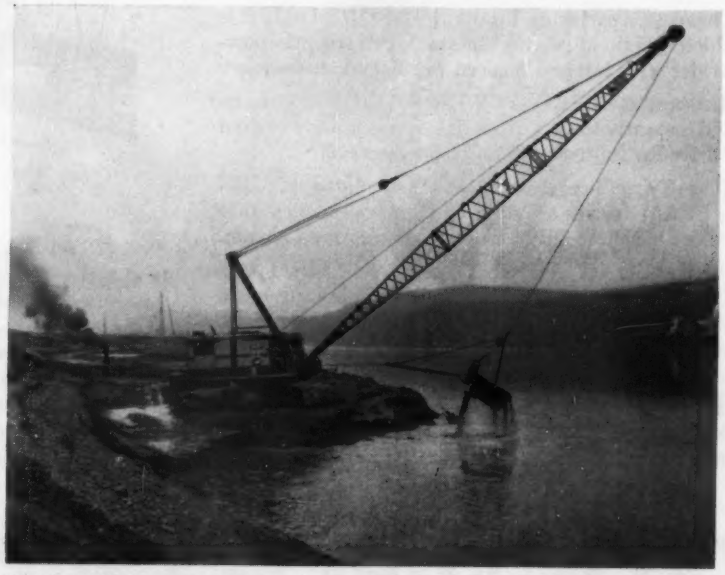
Five storage bins at the plant hold 600 tons of aggregate. The main cement silo at the plant holds 23 carloads, and there is an auxiliary 2½-carload storage facility. Water capacity is 15,000 gal. The plant contains three Koehring 2-yd mixers.

A big part of the job is to dredge the river bottom at each end of the lock. A Bucyrus-Erie 54B with a 2-yd dragline bucket currently is working on this.

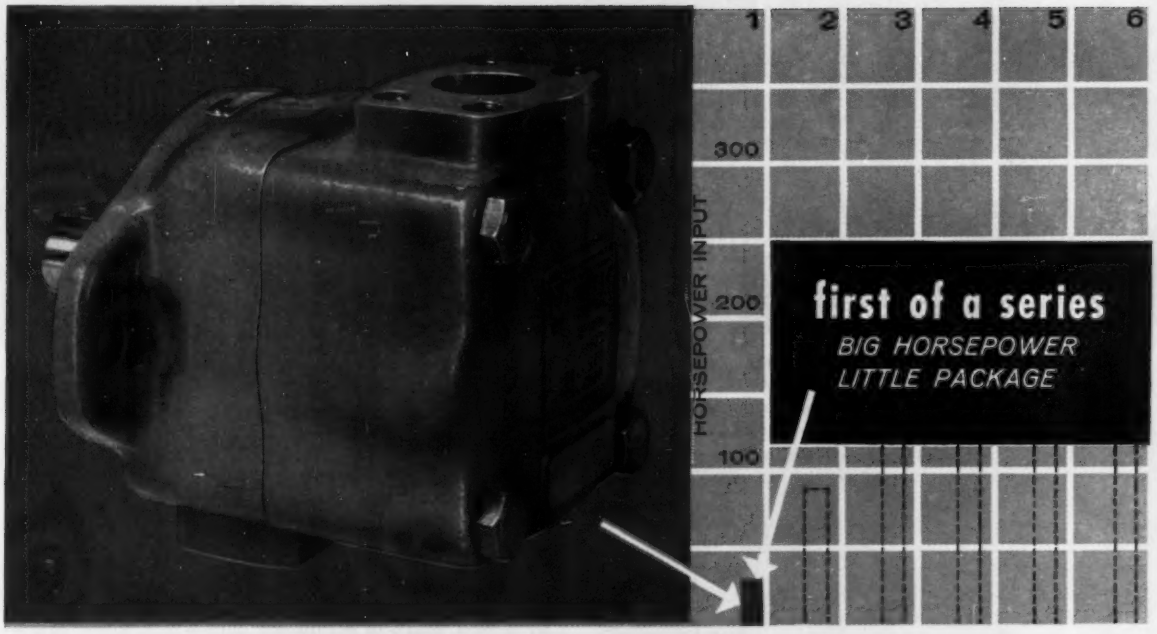
Disposal of waste material is no problem. Some is dumped into selected areas in the river. Much of it goes, under the terms of the contract, as fill to an adjacent site where Ohio Edison Co. is building a steam plant.

Operations of Merritt-Chapman & Scott are under the general supervision of G. G. Werner, Jr., vice president, with Comer heading up the project field staff. Charles Wagner is resident engineer for the Corps of Engineers.

IN LOCK—Marion 111-M crane swings concrete bucket from truck into position over lock wall. After winter slowdown, pouring is going fast. Job will be finished this summer.



OUT OF LOCK—Downriver from lock, Bucyrus-Erie 54-B with 2-yd dragline bucket clears gravel from entrance channel. Some of the river gravel will go into foundation concrete.



NEW VICKERS high performance vane pump

• high speed • high pressure • high efficiency • high service life

NEW COMPACT DESIGN . . . more than twice the horsepower of previous pumps in the same package size.

NEW VANE CONSTRUCTION . . . positive vane tracking at all speeds assures efficient operation at increased speeds and pressures.

NEW SIZES not previously available . . . answers mobile equipment designers' need for greater hydraulic horsepower in limited space.

NEW PARTS INTERCHANGEABILITY . . . many common parts for single and double pumps (two pumps on the same shaft in one envelope). Lessens inventory requirements.

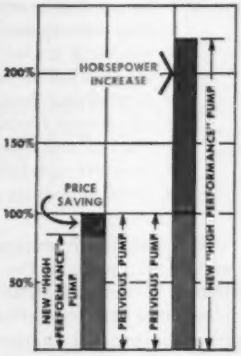
NEW 4-BOLT SAE FLANGE CONNECTIONS . . . will also accommodate user's 2-bolt flanges of the proper design.

NEW 2-BOLT MOUNTING (SAE 1959 STD.).

NEW REPLACEABLE PUMPING CARTRIDGE . . . all wearing parts of pump are incorporated in one replaceable cartridge. Easy field replacement without removing pump from its mount. Cartridges available in kit form.

MORE HORSEPOWER PER DOLLAR. The graph at the right makes a revealing comparison between this new pump and a previous pump of the same rated delivery. The new Vickers "High Performance" pump provides more than *twice the horsepower* at *less cost* while shrinking package size from 200 to 112 cubic inches.

The complete line of "High Performance" pumps (both single and double) is being readied for release. Size range will accommodate your largest requirements. This first model of the series is available in three ring capacities; 12 gpm, 14 gpm, and 17 gpm as shown in table below.



Model Number	Delivery-GPM 1200 RPM 100 PSI	Delivery-GPM 2000 RPM 2000 PSI	Input Horsepower @ 2000 RPM 2000 PSI	Package Size†	Weight
2V12A-**10	11.8	17.8	25.5	L. 5⅞" W. 4⅝" H. 5¾"	26 Lb.
2V14A-**10	13.6	20.4	29.0		
2V17A-**10	16.6	25.2	36.0		

†Exclusive of Shaft Extension and Mounting Lobes

8050

Write for new illustrated Bulletin No. M5108 for further details and performance characteristics.

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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

How contractor Sam Braen carves out a big share of construction with $15 million of equipment and plants and 2,000 men

Heavy construction contracting has come a long way from the days of four-legged horsepower, picks and shovels. Over the years, the advent of mechanization saw tractors replace horses, pneumatic hammers replace pick axes, trucks replace wagons . . . all of which do greater amounts of work with fewer men. In the period 1948-57 alone, a staggering $360 billion of construction was completed. The Department of Commerce forecasts another record year with $49.6 billion of construction in 1958. And all signs point to greater records in the years ahead as construction continues its important role in the nation's economy and growth.

One important contractor who has contributed to construction in great measure is Samuel Braen Companies. This contractor has been actively engaged in heavy construction work since 1915. Braen's operation began with a trap rock quarry. Over the years it has continually expanded its operations and services to include

- heavy construction and engineering
- trap rock quarries
- sand and gravel pits
- ready mixed concrete plants
- bituminous concrete (asphaltic) plants
- equipment rentals
- road oil and emulsion application
- concrete specialties
- Shell petroleum products (distributor)

The man largely responsible for the organization's growth and development in the past decade is president Samuel Braen. Under his direction and planning the company's plants and services have spread to 12 cities extending over North Jersey and Orange, Sullivan, and Rockland counties in New York.

The Facts: Sam Braen Companies

- Completed $3½ million of construction in '57
- Owns 694 units of construction equipment valued at $8 million
- Owns 4 sand and gravel plants, 4 asphalt plants, 25 ready-mix concrete plants valued at $7 million
- Employs 2,000

Sam Braen's operation embraces a wide variety of heavy construction projects such as road building . . . site clearing and grading . . . earth moving . . . excavating . . . sewer construction . . . airport runways and parking areas . . . underground utilities . . . pipelines . . . water systems . . . drainage systems . . . disposal plants . . . flood control . . . and Army, Navy and Air Force projects.

Contractor Sam Braen owns and operates one of the largest fleets of heavy duty equipment in the east. The $8 million worth of equipment with which Braen carves out a big share of construction consists of the following:

Sam Braen's construction equipment

150 transit mixers (Rex, Worthington)	20 front end loaders (Hough)
150 dump trucks (GMC, International, Ford, Mack, Autocar)	25 rollers (Galion, Buffalo-Springfield, Huber)
25 crawler tractors (Caterpillar, Allis-Chalmers, Oliver, International Harvester)	12 graders (Galion)
20 off-road dump trucks (Euclid)	15 scrapers (Caterpillar, LeTourneau-Westinghouse, Euclid)
80 pickup trucks (GMC, Ford, Chevrolet)	5 pavers (Barber-Greene)
4 trailers (Fruehauf)	4 road sweepers (Austin-Western)
3 platform trailers (Rogers)	20 compressors (Ingersoll-Rand,Worthington)
6 jeeps	15 pumps (Homelite)
1 half track	30 generators
25 shovels (Lorain, Koehring, Northwest, Bucyrus-Erie)	2 asphalt curb machines
8 portable welding machines (P&H)	8 radio telephones
	6 firewagons
	4 tarpots
	10 steam cleaners (Malsbary)
	4 truck cranes (Michigan)

Sam Braen's expansion program includes continuous additions to his giant fleet of equipment. In 1957, this contractor purchased $500,000 worth of new equipment of all types.

An important segment of the Braen company's operation is its 2 quarries and some 23 sand and gravel, asphalt and ready-mix concrete plants. These are located in 12 cities throughout New Jersey. Braen's portable asphalt and concrete plants are used on the site of construction projects for greater speed of operation.

$4 million project. The clearing, grading, excavating, roads and parking areas for the Ford Motor Co.'s assembly plant at Mahwah, N.J. was done by the Braen Construction Division. Grading of site and soil removal, 500,000 cu. yds. Ready-mix concrete for floors, walls, driveways, parking slabs and side walks, 65,000 cu. yds. supplied by Sam Braen ready-mix div. The materials used in roads and parking areas were sufficient to pave a highway twenty-four feet wide and twenty miles long.

Part of Sam Braen's $8 million of equipment is shown clearing ground for Bergen Mall Shopping Center, Paramus, N.J. Braen supplied 60,000 tons of stone valued at $100,000 and $250,000 of concrete. Projects of this kind required use of Braen's fleet of 15 scrapers, 25 dozers, 150 dump trucks, 150 transit mixers and countless other equipment.

An 8-mile strip from Paramus to New York State line on New Jersey Garden State Parkway. Sam Braen provided 170,000 tons of stone and 50,000 tons of asphalt for this $1½ million contract and completed the paving. Paving projects of this kind call for Braen's 5 pavers, 12 graders, 25 rollers, oil distributors, 150 dump trucks, and other equipment required in paving work.

Braen invests over $½ million a year for maintenance

"Maintenance of equipment," says Sam Braen, "is the very foundation of every contractor's operation. Without an efficient and continuous program, a contractor cannot survive for very long." Located on 3,000 acres which house the Braen companies operations, are *SIX maintenance shops.* In one of these, over $200,000 a year goes into maintenance of Braen's ready-mix operation. A crew of nine men do all maintenance on a fleet of ready-mix trucks, pickups, carryalls, and 100 company cars.

The separate construction equipment maintenance shop is housed in a similar 126' x 65' brick building. A crew of 18 men repair and maintain Braen's large fleet of heavy construction equipment. This shop spends up to $250,000 a year for repairs, maintenance parts, accessories, etc. Well-organized storage bins hold large supplies of:

bearings—spark plugs—filters—rubber hose—magneto parts—cylinders for brakes—bushings—shims—water seals—track rollers—replacement glass—carburetors—batteries—wire rope and cable—pumps—tires—anti-freeze and countless other items.

Sam Braen's construction equipment maintenance shop handles repairs on approximately 150 pieces of construction equipment. Two rollers, a paver, and tractor shown above are in for general repairs requiring some $2,500 in parts and accessories. Up to $250,000 a year is spent for equipment maintenance in this maintenance shop alone.

A unique feature of the Braen construction equipment maintenance operation is a separate electrical shop with over $5,000 worth of testing equipment for electrical and fuel systems.

"I have been a loyal subscriber of CONSTRUCTION METHODS magazine since 1947"

— says contractor Sam Braen

CONSTRUCTION METHODS AND EQUIPMENT magazine has served the needs of construction contractors for over 35 years. That it meets the requirements of contractors and other key men in construction is evidenced by its continuous paid circulation growth to over 45,000. 64% of this total are in contracting organizations like Sam Braen Companies.

Here is what president Sam Braen says of Construction Methods . . .

"The many new developments in our industry make it important for me to keep informed of changes in new equipment, techniques, or materials and their application. CONSTRUCTION METHODS meets this contractor need. That's why I have subscribed to it since 1947. I feel it is one of the top construction publications in the industry."

Construction Methods AND EQUIPMENT

ABC ABP

In addition to president Sam Braen, CONSTRUCTION METHODS subscribers in this contracting firm include officers and other key personnel such as the Vice President in charge of construction, general superintendent, manager, foreman, heavy duty mechanic, equipment operator. CONSTRUCTION METHODS offers you this kind of circulation penetration in over 13,000 contracting firms.

Remember, contractors are by far the largest purchasers of construction materials and equipment. Not only do contractors find CONSTRUCTION METHODS most useful . . . but advertisers must, too. For year after year advertisers of construction products invest more dollars in more pages here than in any other construction monthly publication.

To reach and sell important contractors like Samuel Braen most effectively – advertise in CONSTRUCTION METHODS, the contractor magazine.

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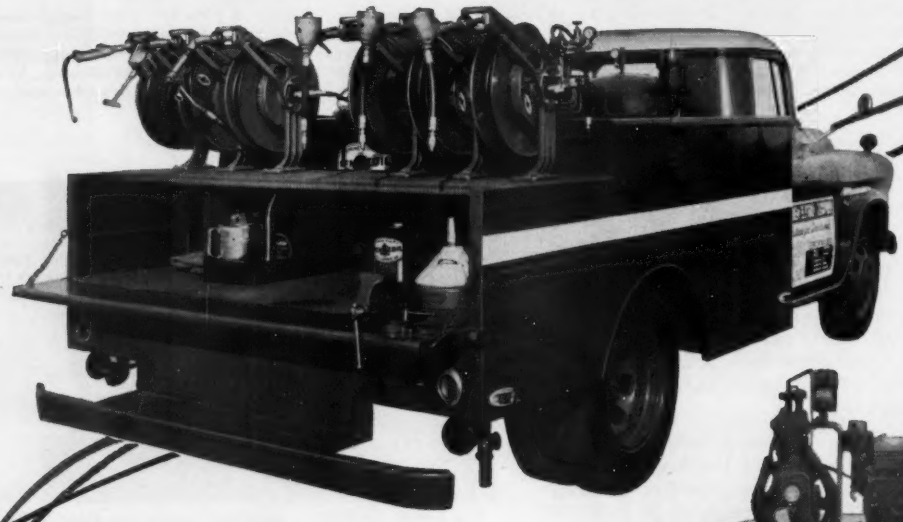
Increase job profits 3 ways with Lincoln Lubmobiles*



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Cut cost per yard

Reduce down-time by lubricating on-the-job

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Lincoln Lubmobiles are available in standard combinations of air-motor operated pumps for 120-lb. drums, with power-actuated reels and hose assemblies for all standard services. Or, if you prefer, plan your own Lubmobile with individual Lincoln drum pumps, hose reels, and accessories . . . designed for easy assembly and quick installation. Also available, standard units or components for 400-lb. drums.

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Lincoln

LINCOLN ENGINEERING COMPANY
Division of The McNeil Machine & Engineering Co.

GRUBBING TOOL—Mounted on front end of ¾-yd excavator, Bles Stump Axe slices trunk and roots into easily-handled segments. Axe, invented by contractor, cut his costs by 75%.

Stump Axe Clears Land Fast

A STUMP-REMOVING TOOL mounted on the front end of a ¾-yd excavator cuts grubbing costs for a Virginia contractor by 75%. Called the Bles Stump Axe, the attachment is now available to other contractors.

The inventor, M. J. Bles Construction Co., McLean, Va., used the grubbing tool to clear more than 2,500 green stumps from 45 heavily forested acres in northern Virginia. The cleared land forms part of the 133-acre site on which the Federal Public Buildings Service is constructing a $56-million headquarters structure for the Central Intelligence Agency.

"With four different operators, none of whom had ever worked with the axe before, we removed 2,714 stumps in an actual operating time of 325 hr," says Bles. "The total time includes moving and oiling the excavator and grinding the cutting edge of the axe. We spent an average of slightly over 7 min per stump. This means a savings of 75% over conventional grubbing methods."

The stump axe, which operates like a backhoe, mounts on the front end of a crawler or truck-mounted ¾-yd excavator. The axe section hangs from a 20-ft-long welded boom built from two box girders. The 11-ft-long axe arm is made of 2-in. steel plate. It has a curved, hard-faced steel cutting edge about 5 ft long. The attachment is controlled by cables. A hand grinder and generator, supplied with the axe, are used by the operator twice a day to sharpen the cutting edge.

continued on next page

BUSINESS END—Cable-controlled axe arm has 5-ft long, hard-faced cutting edge.

One of the virtues of the stump axe is that it shakes off attached soil from roots and stump splinters as it removes fragments. This is a big advantage in light fill areas, because it leaves a smaller depression to be backfilled. To help the axe pick up stump fragments and pull roots the axe arm has a horizontal, triangular plate welded to its bottom edge.

Bles used the stump axe on the CIA job under adverse conditions. For one thing, it rained about 30% of the working time, and the ground was so wet that chains had to be bolted to the crawler pads to keep the excavator from skidding.

Another disadvantage was that stumps already had been cut off 12-in. or less from the ground by the preceding land clearing contractor, who wanted all the lumber he could get under his contract. If 2 to 4 ft of trunk had been left standing, the axe would have cut them into vertical sections by slicing stumps downward from the top. Instead, the axe had to chop upward from the bottom. According to Bles, the axe works best when stumps are 4 ft high.

Despite the low height of the butts left standing, the axe handled the toughest stumps with speed and precision. It cut 6-ft-dia stumps into slices in 5 or 10 min—depending on the type of wood—and it split and pulled 3-ft-dia stumps in less than 3 min. The axe removed an average of 80 stumps a day.

Edward A. Heinman, PBS construction engineer in charge of the project, called the axe "the fastest and cleanest thing in stump removal tools that I've ever seen—and I've seen plenty of them."

Mounted on a ¾-yd excavator, the machine and axe weigh about 65,000 lb. The point of the curved cutting edge exerts considerably more force than its weight indicates without pulling the excavator forward.

Under the heavy pressure exerted by the cutting edge, the axe sliced segments to any thickness the operator desired. Generally, fragments were kept small enough so that they could be handled easily by two men.

Long, slow-burning, solid logs were avoided completely because the axe sliced stumps into small sections. Bles used a Caterpillar D4 crawler tractor with a root rake to heap the splintered wood fragments into large piles. Bles estimates the dozing time required to pile the fragments was 182 hr, and the burning time was 76½ hr. About 225 gal of fuel oil was used to ignite and burn the green stumps. The fuel oil was delivered through a spray nozzle connected by hose to an oil drum. A large, jeep-mounted fan speeded the burning process.

The total cash output for both labor and materials to clear and burn the more than 2,700 stumps — 66% of which were larger than 3 in. in dia—was $1,900, or about 70¢ per stump. This does not include operating costs for the excavator or dozer.

Bles is now manufacturing the stump axe at his McLean, Va., shop. The axe and boom attachment, including the grinder and generator, sell for about $5,000. Bles will soon enlarge his shop into a manufacturing plant.

A BRIDGE IN TIME . . .

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• Launching a Bailey bridge with a simple launching system which cuts equipment costs.

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Esso

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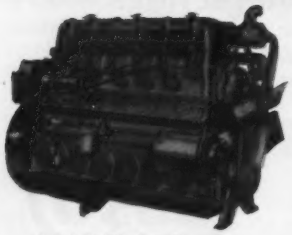
"Power to improve performance and cut fuel costs in half"

Mr. Harry Wagner of Wagner Crane Service, Bronx, N.Y., says, "This is our first experience with diesel power on our cranes. And we are very enthusiastic about our 45-ton P&H 575 Crane powered with two 6-cyl. P&H Diesels.

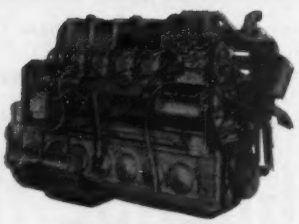
- **"P&H Diesels are more powerful than gas engines. They never stall. Even on an idle engine you can pick up a heavy load.**
- **"They cut fuel costs in half! It takes only $15 to $20 of diesel fuel a week to operate this 45-ton rig.**
- **"Morning starts in cold weather are no problem with P&H Diesels. When it comes to starting, they kick right over.**
- **"P&H Diesels are easy to take care of—all fittings are easy to get at—and all wearing parts are interchangeable."**

Until development of the P&H Diesel, owners had to be satisfied with diesels which did not fully utilize all the potentials of truck cranes that have to idle hours on end. But P&H has changed this situation. Now, when a truck crane picks up a heavy load the P&H Diesel responds instantly —without fouling.

For all your construction equipment, specify the one diesel with all the features that deliver the best in performance and operating economy —P&H Diesel! Write Dept. 415A, P&H Diesel Engine Division, Crystal Lake, Illinois.



6-Cyl. P&H Industrial Engine for "upper"—205 HP.



6-Cyl. P&H Automotive Engine for "lower"—280 HP.

P&H DIESELS

Fastest Growing Name in Diesel Power

Look ahead....*move ahead*...and stay ahead

with Allis-Chalmers construction machinery

fastest growing acceptance in the business...

Everywhere you go, you see more and more Allis-Chalmers construction machines—because they're *doing more*. On big jobs or utility work, they're proving value by performance . . . earning steadily increasing popularity.

HERE'S THE COMPLETE LINE

Allis-Chalmers crawler tractors for every application

HD-21

225 net engine hp
torque converter drive
56,260 lb (approx. as shown)

HD-21A illustrated—
Two other models available

4-CU-YD
HD-21G
225 net engine hp
13-ft., 4-in. dump height
66,500 lb

3-CU-YD
HD-16G
150 net engine hp
12-ft., 3-in. dump height
47,800 lb

Designed and built for high-volume

Allis-Chalmers motor scrapers and wagons

TS-360
280 hp
Struck—15 yd • Heaped—20 yd
Weight—49,050 lb (approx.)

TW-360
280 hp • 28 payload tons
Struck—17 yd • Heaped—24 yd
Weight—47,000 lb (approx.)

model 315
Struck—15 yd • Heaped—20 yd • Cable control • 25,850 lb

model 108
Struck—8.4 yd • Heaped—12 yd
Cable control • 15,250 lb

HD-16

Choice of two outstanding drives

torque converter | all-gear

150 net engine hp | 141 belt hp

39,090 lb (approx. as shown)

HD-11

94 belt hp

25,960 lb

(approx. as shown)

HD-6

63 belt hp

16,470 lb

(approx. as shown)

HD-16DC illustrated—
Five other models available

HD-11B illustrated—
Two other models available

HD-6E illustrated—
Three other models available

2¼-CU-YD

HD-11G

111 net engine hp

11-ft., 7-in. dump height

32,000 lb

1½-CU-YD

HD-6G

72 net engine hp

10-ft. dump height

19,600 lb

Allis-Chalmers tractor shovels in a full range of bucket sizes

Up to 7-cu-yd capacity to match requirements for various materials and job conditions.

performance you can depend on

TR-260

290 hp • 18 payload tons

Struck—11 yd • Heaped—15 yd

Weight—42,800 lb (approx.)

TS-260

290 hp

Struck—11 yd • Heaped—14 yd

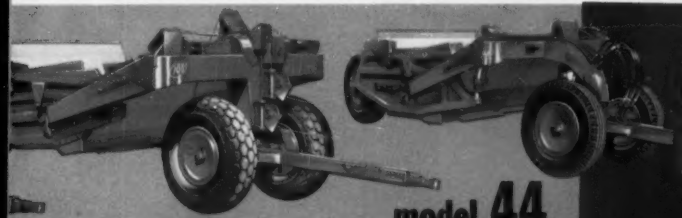
Weight—39,600 lb (approx.)

TS-160

155 hp

Struck—7 yd • Heaped—9½ yd

Weight—28,500 lb (approx.)



model 106

Struck—6.1 yd • Heaped—8.5 yd

Cable control • 10,300 lb

model 44

Struck—4 yd

Heaped—5.4 yd

Hydraulic control

6,595 lb

Allis-Chalmers pull-type scrapers

The only line with low bowl, high apron lift, forced ejection in every size.

SEE MORE

ENGINEERING IN ACTION

Allis-Chalmers motor graders—designed for comfort-conscious operators and cost-conscious owners

Model D Special

50 brake hp
10,900 lb (gasoline)
11,450 lb (diesel)
4 forward speeds to 25 mph (approx.)
1 reverse speed to 3 mph (approx.)
All-steel cab*
Shiftable moldboard*
Hydraulic scarifier*
Leaning front wheels*
Power circle turn*

**Also available individually with the Model D Standard as optional equipment.*

Rear-mounted attachments available as optional equipment include ⅝-yd loader; shoulder maintainer; windrow eliminator.

Model D Standard

50 brake hp
8,800 lb (gasoline)
9,350 lb (diesel)

FORTY-FIVE

120 brake hp
6 forward speeds to 20.6 mph
3 reverse speeds to 7.0 mph
23,800 lb (approx.)

Ask for a demonstration. Your Allis-Chalmers dealer will be glad to prove the value of any of these machines in a working demonstration. Call him now.

Look ahead...*move ahead*...and stay ahead

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

FORM MS-1302

Litho. in U.S.A.

Are You Preparing *Now* For The Next Boom?

America's leading companies are not sitting on their hands waiting for the recession to end. They are planning ahead ***now*** for higher sales and near-capacity rates of operation.

These facts stand out clearly from the eleventh annual survey of Business' Plans for New Plants and Equipment just completed by the McGraw-Hill Department of Economics:

- **Manufacturing companies expect their sales to increase 20%, on the average, from 1958 to 1961.** Growth industries, such as chemicals and electrical machinery, expect gains of 25% to 34%.
- **If these sales gains are achieved, the average rate of operations in manufacturing will rise from 78% at the end of 1957 to almost 85% by 1961.** This is the point at which pressure on costs begins to mount, as less efficient facilities are pressed into service.
- **Industry is not waiting for this point to begin getting its plants and equipment in shape for the next boom.** Despite record expansion in the past several years, many manufacturing companies plan to add new capacity in each of the next four years. But, more important, they are going ahead with the vital job of modernization and cost-cutting.

In the years immediately ahead almost two-thirds of capital investment will go for modernization and replacement of present plants and equipment. In this way manufacturing companies can avoid the higher costs and the squeeze on profits that occur when producing facilities are not in shape to handle an increase in sales volume.

These are the plans, as reported to McGraw-Hill, of a wide sample of manufacturing companies—for the most part, large firms and leaders in their respective industries. Altogether, these firms account for almost 40% of all employment in manufacturing industries.

Now Is The Time

How do your plans measure up? Are you planning ahead now for a 20% sales increase in the next three years? Is your company planning to modernize its buildings and equipment more rapidly than at any time in the recent past? If not, here are some of the inducements

that McGraw-Hill editors report from their continuous checking on the state of business.

(1) **There are plenty of opportunities for increasing efficiency by the installation of new equipment and the improvement of layouts in plants, warehouses and offices.** Despite the installation of tremendous volumes of metalworking equipment in recent years, according to AMERICAN MACHINIST over half of the machine tools now in U. S. factories are over 10 years old. Replacement of worn-out and obsolete equipment will mean material savings in operating and maintenance costs.

(2) **Machinery, parts, materials and labor are much more readily available now than they are when the economy is running at full steam.** You can be more particular about quality and about specification to meet your own requirements.

(3) **With lower interest rates and less competition for loans, it is both easier and cheaper to borrow money to finance equipment and construction.** To wait for another boom is to run the risk of having to pay higher interest rates and look harder for money.

(4) **Although there is an adequate supply of most types of labor available now, the prospect is that the supply of factory labor over the years ahead will be tight.** In 1965, there will actually be fewer men and women between the ages of 25 and 44 than there are now. Good factory workers will be either hard to get, or wage rates will rise sharply or—more likely—both. The best answer is to anticipate the rise in labor costs by installing more efficient equipment to increase labor productivity.

(5) **Finally, the costs of investing in new buildings and improved equipment *now* are almost surely less than they will be later.**

These are some of the reasons why many leading firms find ***now*** the best time in years to start on a program of plant modernization. There are other good reasons in the many new products and processes coming from the boom in research and development. This year industry will spend over $8 billion on R & D—$1 billion more than in 1957. And a heavy share of the new product development will consist of better machines and processes to be made available during the next few years. Already the pace of technical advance is so rapid as to call for modernization of plants built only a few years ago.

Years of Opportunity

It has been said that the years between now and 1961 are the "middle years" between two booms. This does not mean a long period of recession, but a period of slower growth—a transition from the postwar boom based on deferred demand, to a new boom in the 1960s based on dynamic population growth and a revolution in technology.

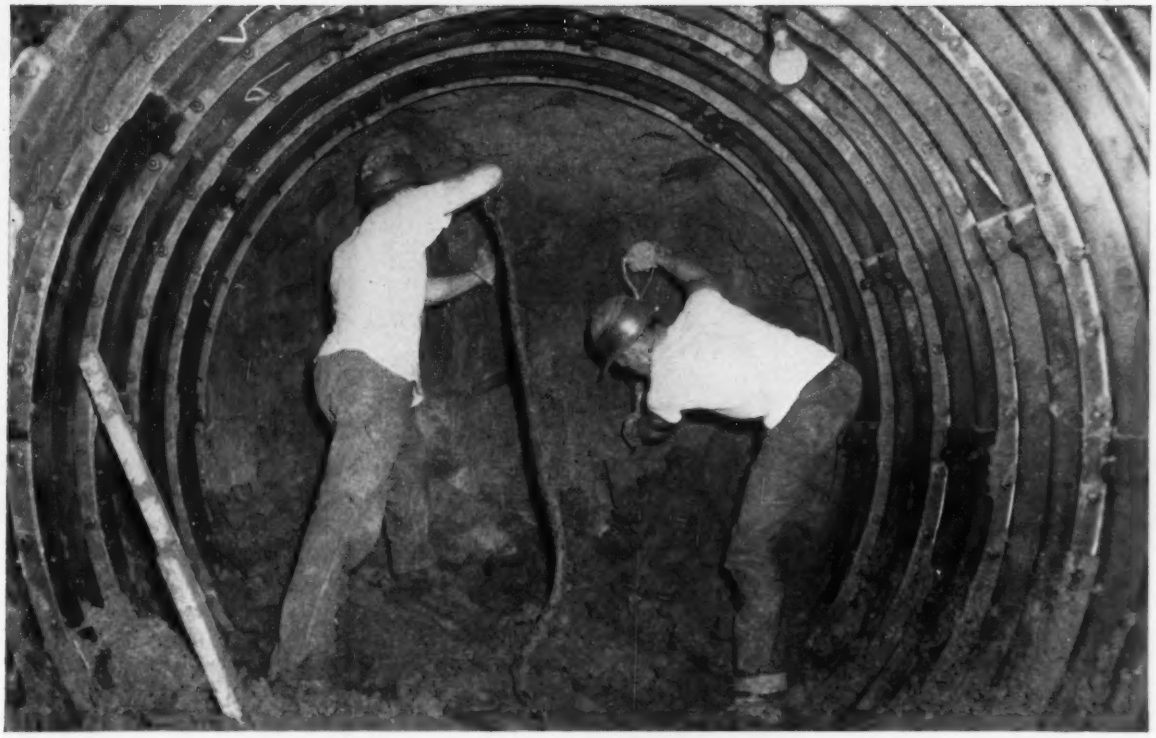
If so, these are the years of opportunity for business—opportunity to prepare for the growth that lies ahead with the most efficient equipment, the most modern plant and the best production organization that can be devised. This is the way to fight higher costs and avert a resumption of inflation. This is also the way to ensure that your company will be ready for its new markets in the 1960s.

Are you planning ahead ***now*** to be among the leaders?

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw
PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.



These Armco men are installing a tunnel of Armco Liner Plates through a railroad fill on a subcontract from a general contractor.

On a fixed-price, subcontract basis

You can get Armco Products Installed

Armco Construction Service specializes in the *installation* of Armco Drainage and Construction Products on a subcontract basis. This is offered as a service to the general contractor who gains the advantages of known cost, and speed of installation on specialized jobs. In addition, your own equipment and personnel are free for other work.

Subcontract work handled by Armco Construction Service includes jobs like tunneling with Armco Liner Plates; boring and jacking of conduit, sewers and other drainage structures; assembly and installation of Armco Corrugated Metal Pipe and larger MULTI-PLATE® Structures; erection of Armco Steel Buildings, Armco Retaining Walls and Armco FLEX-BEAM® Guardrail.

This service has been used by contractors for the past 28 years. Both equipment and skilled crews are available to handle your specialized jobs quickly and economically. Send coupon for free booklet describing this service. Armco Drainage & Metal Products, Inc., 5508 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

SEND COUPON FOR FREE BOOKLET

Armco Drainage & Metal Products, Inc.
5508 Curtis Street, Middletown, Ohio

Please send my copy of the free booklet explaining the Armco Construction Service.

NAME_____ TITLE_____

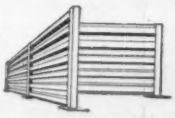
ORGANIZATION_____

STREET_____

CITY_____ ZONE____ STATE_____

The Armco Family of Construction Products

Tunnel Liner Plates



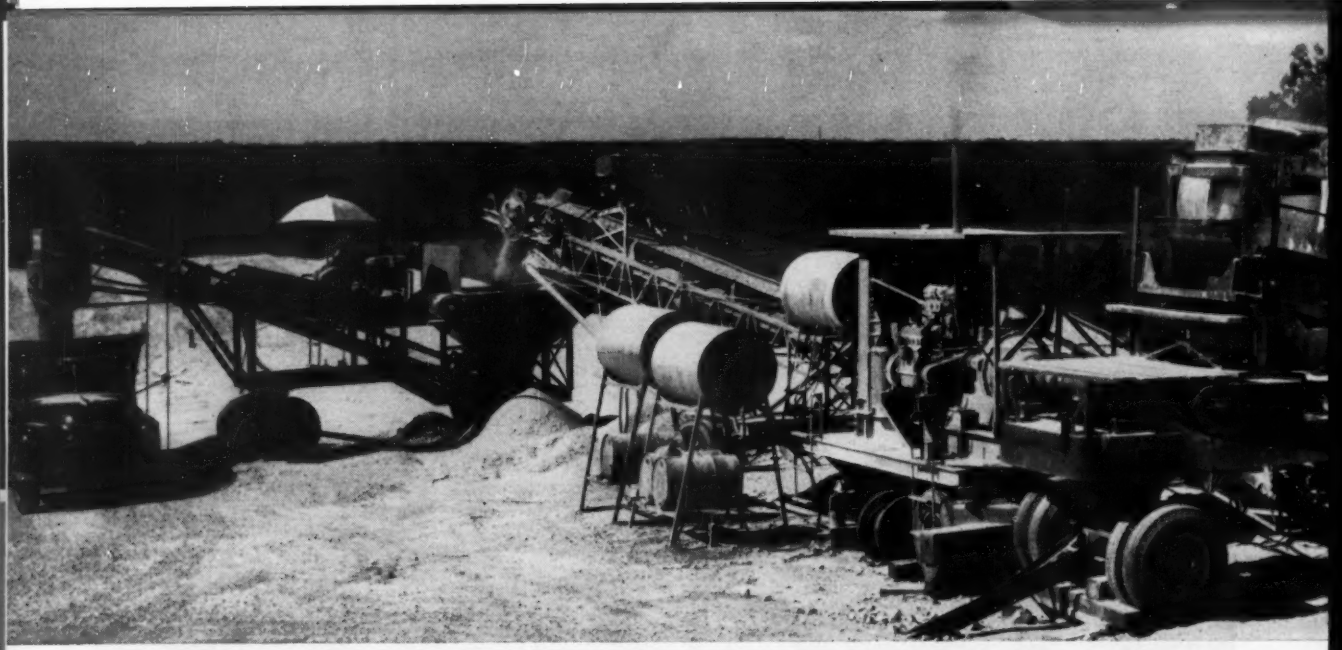
Retaining Walls

Steel Buildings

Corrugated Metal Sewer Pipe and other Drainage Structures

Water Supply Pipe . . . and many others

ARMCO®



On this portable crushing operation, producing materials for use on a grading and drainage contract for the Missouri Freeway construction project near Joplin, Mo., the W. J. Menefee Construction Co. uses 3 Cat Engines to power this crusher.

He staked his (business) life

This big 100% Cat fleet owner says: "The *dependability* of engine power by Caterpillar has always made it possible to anticipate *true* costs—takes the guesswork out of bidding."

From a modest beginning as a small contractor, the highly successful W. J. Menefee Construction Company of Sedalia, Mo., has bet its business life on Caterpillar Engines and machines across the board.

"Experience has shown us that we can always rely on Cat Engine power," says Mr. E. W. Menefee, president.

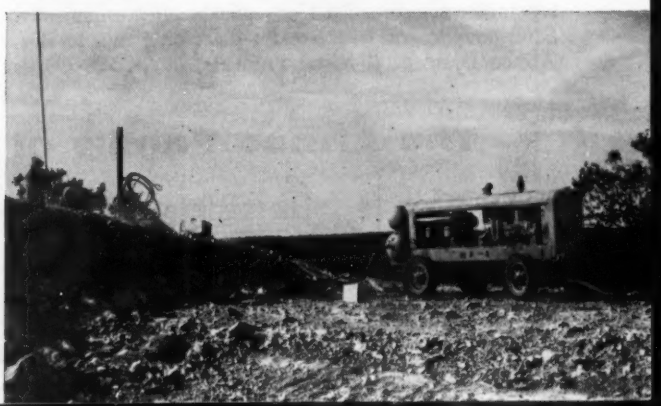
Recently this big spread was responsible for 9 miles of grading and drainage, including the interchange, to join the Missouri Freeway with Oklahoma's Northeastern Turnpike. Besides a variety of modern, heavy-duty Cat Engines to power crusher, shovels and compressors, Menefee is getting this big, tough job done on time with a large fleet of Caterpillar equipment, including DW21s and DW-10s, D9s and D8s (with No. 28 Rippers) and No. 12 Motor Graders.

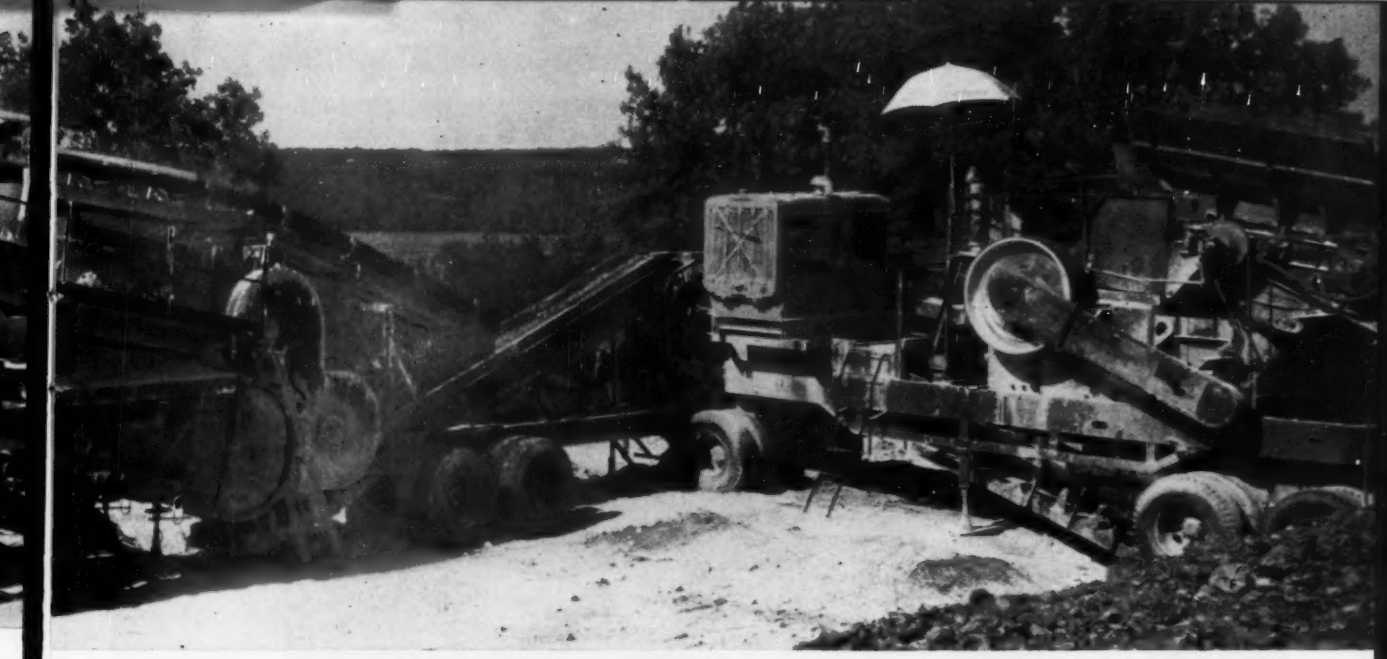
This contractor's policy of always specifying Cat Engine power and machines—coupled with sound management practices—has paid off in profits. Like other successful contractors, this spread gains solid advantages by relying all the way on Cat equipment. Its reputation and preference by contractors mean pride of ownership, high trade-ins, and an organization that stands behind the product.

Reliably rated Cat Diesel Engines and Electric Sets give more work for each dollar spent for purchase, repairs and operation. Production is maintained at an even level because there is no appreciable letdown in power as equipment ages.

Cat DW21 Wheel Tractors pushloaded by a big D9 work in tough chert conglomerate on Menefee's Freeway job.

Cat Diesel drives a pneumatic compressor drilling blast holes in rock quarry for materials used on the Freeway job.



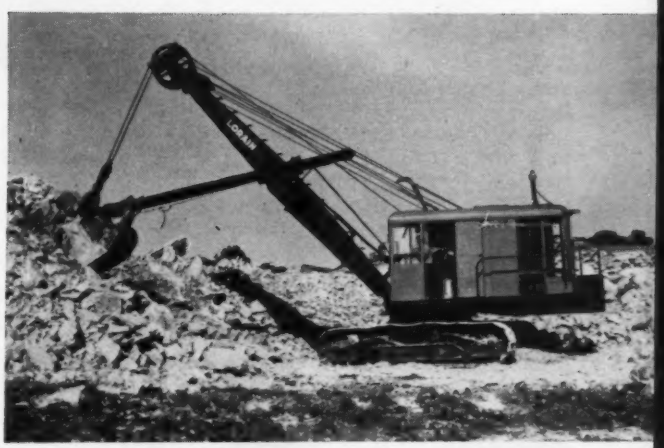


on Caterpillar

Cat Engines mean minimum down time, permitting closer bidding of every job, and their well-known durability can handle the harsh materials and severe job conditions the contractor faces. All of these factors result in lower operating costs than other diesel power plants; and the market value of Cat equipment stays high after normal amortization.

Get in touch with your Caterpillar Dealer today for details—he knows his business, and understands your problems, too.

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U. S. A. Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



A Cat D337 Engine powers this Lorain shovel feeding rock to Pioneer portable crushing plant — part of the W. J. Menefee Construction Company's big Missouri Freeway linkage project.

ENGINE POWER BY CATERPILLAR

Why we are a 100% Cat fleet owner today

"When *buying machinery* or *preparing a bid* we don't take unnecessary chances. Cat units will pay for themselves in savings alone. Elimination of excessive down time really pays off, and our operating costs are low. Cat Engines are real work horses, producing as rated, day in and day out. Add excellent dealer service and parts availability—even on the old ones—and you have the reason why we are a 100% Cat fleet owner today. We look for realistic value when we buy, and we get it when we specify Caterpillar!"

—E. W. Menefee, president

Engine Division Dept. CM6
CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A.

Send me more information about Cat Engines and Electric Sets for original power and repowering.

☐ Have your dealer call for an appointment, as I may be in the market. I understand that I am under no obligation.

☐ I am interested in learning more in general about these engines.

*Name*_____

*Company*_____

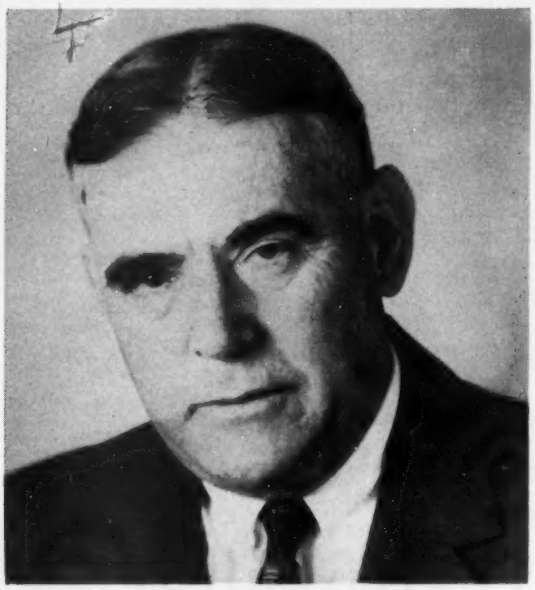
*Address*_____

*City*_____ *Zone*____ *State*_____

Construction Men in the News...

Walter Kidde

RAYMOND S. HOFFMAN is a new director of Walter Kidde Engineers, Southwest, Inc., subsidiary of Walter Kidde Constructors, Inc. Hoffman joined the company in 1951 as manager of petroleum and chemical services. Before that he was associated with Esso Standard Oil Co.



HOWARD A. COLLINS

Moles Elect New Officers

HOWARD A. COLLINS, president of Howard Collins Construction Co., is new president of The Moles, an association of outstanding heavy construction contractors and engineers. He succeeds Richard A. Johnson, president of Arthur A. Johnson Corp.

Other new officers include Mansell L. MacLean of MacLean-Grove & Co., first vice president; Chester W. Cambell of the Foundation Company, second vice president; Harry T. Immerman of Spencer, White & Prentis, treasurer; Eugene F. Moran, Jr., of Moran Towing Corp., secretary; and John C. MacElroy of J. C. MacElroy Co., sergeant-at-arms.

The new Moles president started in construction with Godwin Construction Co. in 1919. By 1945 he formed his own company and since has handled many major excavating and foundation jobs in New York City. Some of his jobs include a tunnel from the Chrysler Building into Grand Central Terminal; and foundations for the Port of New York Authority Bus Terminal, Lever House, and Canada House.

Daniel Construction

BUCK MICKEL is the new vice president and assistant general manager of Daniel Construction Co., Greenville, S. C.

Mickel joined Daniel in 1948 as a field engineer. He spent three years in uniform during the Korean war, then returned to the company's cost department in 1952. He later became an estimator and project manager and directed the construction of many manufacturing plants in the south.

Edward Gray

WAYNE B. YARNALL is a new vice president in charge of engineering and construction for the Edward Gray Corp., Chicago, Ill. Yarnall previously was construction supervisor for U.S. Steel Corp.

National Constructors

CARL B. WHYTE, president of Procon, Inc., Des Plaines, Ill., is the new president of the National Constructors Association. He succeeds C. D. Haxby, vice president, Rust Engineering Co., Pittsburgh, Pa.

Other new officers in the association of engineering and building firms include W. R. Wood, president of the Girdler Corp., Louisville, Ky., vice president; and R. E. Atkinson, assistant labor relations manager, Koppers Co., chairman of the labor committee.

Your men, your equipment...wherever they go Hartford protection goes with them

Your jobs can take your men almost anywhere. To the next county . . . a distant state . . . even another land. *And where those men and your equipment go, your protection can go, too.*

You cannot buy more complete coverage than the Hartford offers. Or get it more easily than through a Hartford Group Agent or your insurance broker. The organization they represent can insure you against virtually all risks of property loss, cover your legal liabilities and serve all your bonding requirements.

If trouble comes. No matter where a problem situation may develop, Hartford is set up to give you fast, competent help. For we maintain more than 200 Claim Offices and 64 Engineering Department Offices strategically located from coast to coast. Trained personnel—underwriting experts, claimsmen, auditors and engineers—are at every point ready to go into action at your call.

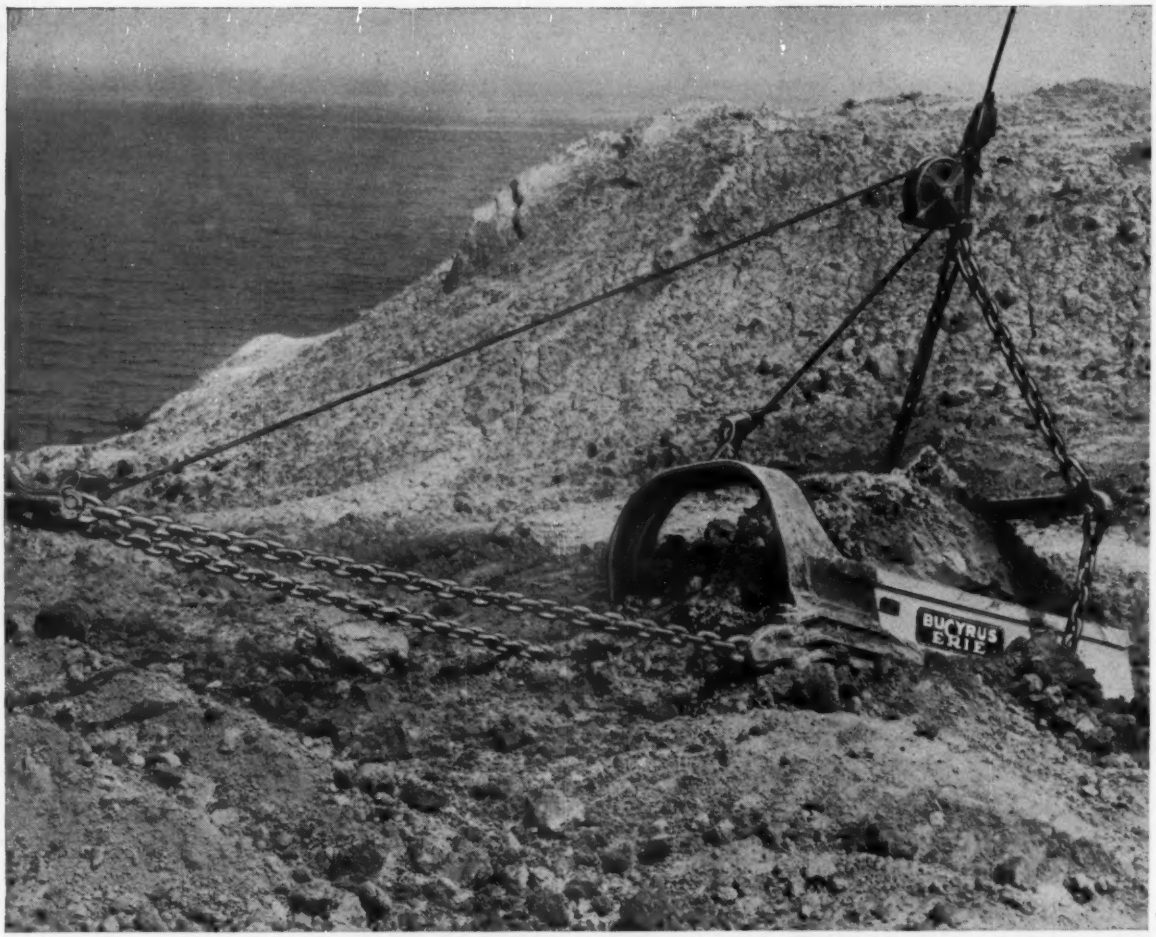
Workmen's Compensation? Its ins and outs need never bother you. Our men know the varied requirements peculiar to every area, East Coast to West, Canada to the Gulf . . . in fact, throughout the world. *And claim service?* Always rendered in the manner traditional with the Hartford, it's prompt . . . efficient . . . considerate . . . fair.

Ask some of the contractors you know what they think of Hartford protection and service. And see how many of them agree on this:

Year in and year out you'll do well with the

HARTFORD
Fire Insurance Company
GROUP

Hartford Fire Insurance Company
Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company
Citizens Insurance Company of New Jersey, *Hartford 15, Connecticut*
New York Underwriters Insurance Company, *New York 38, New York*
Northwestern Fire and Marine Insurance Company
Twin City Fire Insurance Company, *Minneapolis 2, Minnesota*



Bucyrus-Erie buckets are accurately balanced so that "slicing-action" lip penetrates quickly. Basket is tapered to fill rapidly. It is correctly flared and balanced to carry cleanly; has smooth interior and high arch to dump fast.

Bucyrus-Erie buckets PROVE their toughness—

Handle many hundred thousand yards of dirt, sand, and gravel

Bucyrus-Erie buckets are given tough resistance to abrasion through use of the special lightweight alloy, BECOLOY. It *must* be tough, because it resists wear in buckets that handle many hundred thousand yards of dirt, sand and stone.

BECOLOY, used in teeth, lip and side castings, also has high impact resistance to take the bending and breaking forces that come with hard knocks. Field maintenance is simple, too. BECOLOY can be cut with an acetylene torch and welded without special procedures.

On top of longer life and lower upkeep, BECOLOY brings extra payloads. Buckets made of high-strength BECOLOY are lighter. You swing a load that *pays* a lot, not just *weighs* a lot.

Your Bucyrus-Erie distributor will help you choose the bucket that is best for your needs — from a wide range of sizes with solid or perforated baskets, in light, medium, and heavy-duty types. 43R58

A Familiar Sign . . . BUCYRUS ERIE *. . at Scenes of Progress*

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

Sales and Service

Equipment purchasing and servicing takes less time when you know who and where to call. Keep advised of new distributors, sales personnel and other activities.

Distributor Appointments

Koehring Co.: The Buffalo-Springfield Roller Co. division has appointed the following distributors: Central Ohio Tractor Co. of Columbus, Ohio; Texas Machinery & Equipment Co. of Amarillo, Tex.; Llewellyn Machinery Corp. of Miami, Fla.; Contractors' Equipment and Supply Co. of Albuquerque, N. Mex. The Koehring division and Parsons Co. division have appointed the Pelican Machinery Co. of New Orleans, La., as distributor. The Kroeger Equipment Co. of El Cajon, Calif., becomes a Kwik-Mix distributor.

Yale & Towne Mfg. Co.: The following distributors have been appointed for Trojan tractor shovels: Spartan Equipment Co. of Charlotte, N. C.; Craig Taylor Equipment and Supply Co. of Anchorage, Alaska; San-Day Equipment Co. of Knoxville, Tenn.; Korte Brothers, Inc. of Fort Wayne, Ind.; Hawkins Equipment Co. of Memphis, Tenn.; Ingram-Houston, Inc. of Houston, Tex.; and Construction Service Equipment Co. of Omaha, Neb. The Materials Handling Division has appointed Coast Associates, Inc. of Seattle, Wash.

Huber-Warco Co.: The following four distributors have been named: Berry Bros. Machinery Co. of Dallas, Tex.; Contractors Equipment Co. of Decatur, Ga.; Moody Equipment and Supply Co. of Little Rock, Ark.; and Construction Equipment Inc. of Charleston, W. Va.

Clark Equipment Co.: The following four distributors have been appointed: Western Machinery Co. of Spokane, Wash.; Story

Onan ELECTRIC PLANTS

ELECTRIC PLANT NEWS

Onan ELECTRIC PLANTS

3,000 watts

New Onan all-purpose Diesel plant cuts electric power costs in half!

Lower fuel cost, less maintenance, and longer life cut power generation costs with the Onan 3DSL to half that of small gasoline-powered electric plants. For applications requiring an almost continuous supply of electric power, this new plant gives dependable service *season after season.*

Lighter weight and Vacu-Flo cooling

The new 3DSL is powered by an Onan single-cylinder, air-cooled full-Diesel engine. Available in all standard A.C. voltages and also as a 32-volt battery charger. Vacu-Flo cooling, permitting enclosed installations, is standard. It has a new mounted muffler, more efficient dry-type air filter, new geared crank, and it's hooded for protection on the job. Smoother-running, lighter weight, and compact.

New low price makes it an even bigger value . . . allows you to "go Diesel" for more of your power generation needs. For jobs requiring more capacity ask your distributor about the Onan 5DRP, two-cylinder, air-cooled, 5,000-watt Diesel.

Onan gasoline-powered plants: Air-cooled — 500 to 10,000 watts A.C. Water-cooled — 10 to 150 KW.

Handier . . . for more jobs!

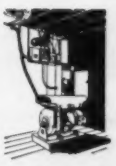
Take it anywhere

Weighs only 470 pounds Haul it to the job in pick-up truck or on Onan's high speed, fully-enclosed trailer.

Operate it anywhere

New steel turret hood protects plant against weather and abuse on the job. All-climate insulated generator.

Install it anywhere



Vacu-Flo cooling permits enclosing the 3DSL completely. Automatically ventilates compartment.

Call your Onan distributor or write for information

D. W. ONAN & SONS INC.

2734A University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

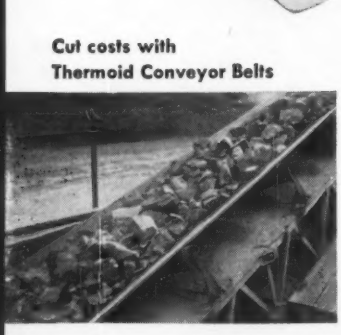
Approximately 40 sections of Thermoid Powerflex Hose, ranging from 15" to 12' in length, and from ¾" to 1½" in diameter are used on this Oliver Super 88 Diesel Tractor equipped with a Ware Hydra-Trencher.

Hose that's built to take it!

On a recent sewer installation, Lehigh Foundation, Inc., Dresher, Pa., dug 40,000 feet of trench. According to Mr. Douglas Sammak, President: "We dug this trench eight hours a day, five days a week on hard ground conditions, and we have over 2,000 hours registered on the machine. The Thermoid Powerflex Hose stood up under terrific punishment on this job."

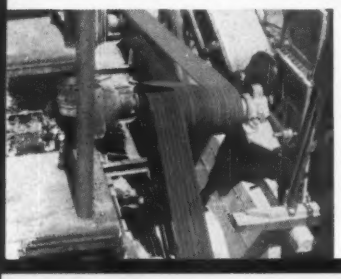
Take a leaf from Mr. Sammak's book. You, too, will find that using Thermoid Powerflex Hose helps you keep maintenance costs and downtime to a minimum . . . your operations moving on schedule.

Your local Thermoid Distributor can help you select the hose best suited to your needs.



Cut costs with Thermoid Conveyor Belts

. . . and Thermoid Multi-V Belts



Thermoid

Thermoid Company
Trenton, New Jersey
Nephi, Utah

SALES & SERVICE . . . continued

Bros. Inc. of Knoxville, Tenn.; McCarthy-Jones & Woodward, of Nashville, Tenn.; and H. C. Ormes Construction Equipment Co. of Minneapolis, Minn.

Diamond T Motor Car Co.: Three new distributors have been appointed. They are: Dana Hudelson, Inc. of Champaign, Ill.; Diamond T Truck Sales and Service of Jackson, Mich.; and General Truck Sales & Service of Milwaukee, Wis.

On the Sales Front

Construction Machinery Co.: Four new regional sales managers have been named for the company's four United States territories. They are: Edward R. Daley, western territory; Paul Weidemen, north central and south-eastern territory; Charles D. Blake, east central territory; and Charles P. Homann, north-eastern territory.

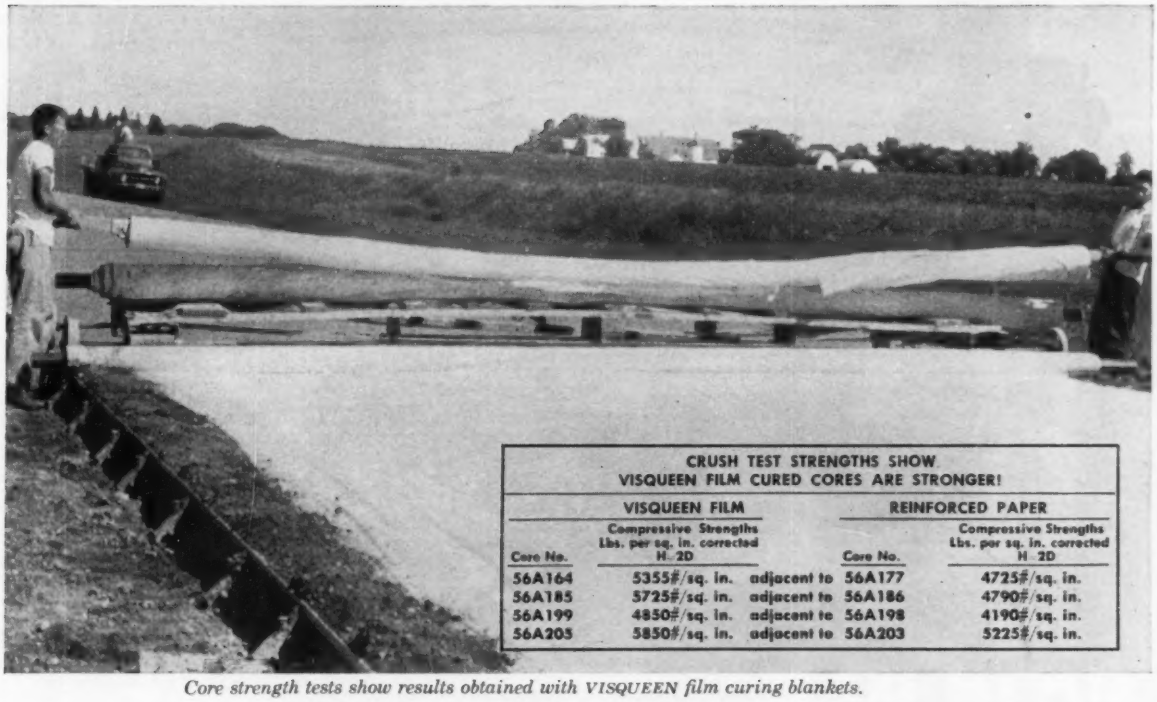
Sherman Products Inc.: Clyde F. Beck has been named field engineering representative for crane and excavator operations. He will work out of Wrightsville Beach, N. C.

Electric Steel Foundry Co.: Carroll Amerine is now district representative covering Nebraska, Iowa, Kansas, Missouri, Oklahoma, and Arkansas.

Koehring Co.: The subsidiary C. S. Johnson Co. has placed Harold E. Buckler in charge of all sales for the company. Jack D. Shoemaker becomes Western Division sales manager. A. K. Downs will concentrate on sales and installation of large automatic concrete plants.

Armco Steel Corp.: Armco Drainage & Metal Products has named Harvey B. Leaver midwestern division sales manager. Also promoted in this division were Jerald H. Boynton, sales manager for Kansas and Missouri; William S. Anders, division manager of drainage and allied product sales; and William H. Lenox, sales manager for Nebraska.

Pettibone Mulliken Corp.: Ridgely C. Folk has been named district manager for Pennsylvania, Maryland, Delaware and southern New Jersey. Joseph W. Larkin is dis-



CRUSH TEST STRENGTHS SHOW VISQUEEN FILM CURED CORES ARE STRONGER!				
VISQUEEN FILM			REINFORCED PAPER	
Core No.	Compressive Strengths Lbs. per sq. in. corrected H-2D		Core No.	Compressive Strengths Lbs. per sq. in. corrected H-2D
56A164	5355#/sq. in.	adjacent to	56A177	4725#/sq. in.
56A185	5725#/sq. in.	adjacent to	56A186	4790#/sq. in.
56A199	4850#/sq. in.	adjacent to	56A198	4190#/sq. in.
56A205	5850#/sq. in.	adjacent to	56A203	5225#/sq. in.

Core strength tests show results obtained with VISQUEEN film curing blankets.

"VISQUEEN" TRADEMARK FILM GIVES STRONGER CURES WITH GREATER ECONOMY

LOW FIRST COST—plus as many as 23 re-uses cut blanket costs to a fraction of a cent/sq. ft.

LOWER LABOR COSTS result because white opaque VISQUEEN film is far lighter, hence easier, more speedily handled. 1000 sq. ft. of .004" thickness weighs 20 lbs. And white opaque VISQUEEN film curing blankets *stay* light. Will not absorb moisture.

TIME SAVING: When using VISQUEEN film curing blankets, additional watering is not necessary. The film rolls up easily—needs no drying or special handling. Will not rot or mildew. Inert—no chemical reactions with concrete—leaves no deposit on slab.

ONLY VISQUEEN film comes in standard widths—or blankets—*seamless* widths up to 32'. Available in 14' roll widths with no folds.

ADDITIONAL USES of VISQUEEN film: rain blankets, equipment and material covers.

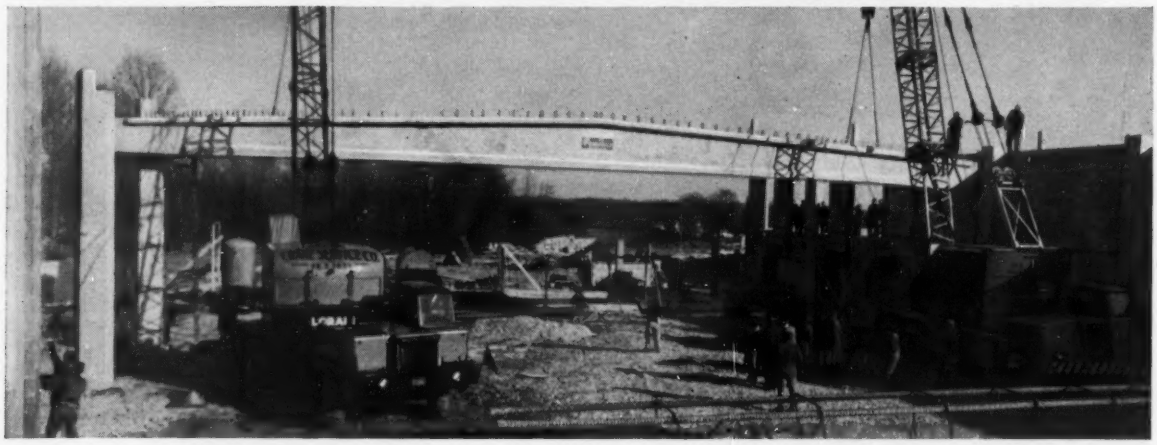
Write now—or use the information request tag below for full information on how VISQUEEN film can do your job better at less cost.

information request tag
VisQueen
Trade Mark
clip this tag— CM-6
attach to letterhead, mail.

VISQUEEN *film—the first and foremost polyethylene film. A product of the long experience and outstanding research of* **VISKING COMPANY** *Division of* UNION CARBIDE *Corporation*
P. O. Box 1410, Terre Haute, Indiana
In Canada: VISKING COMPANY, DIVISION OF UNION CARBIDE CANADA LIMITED, Lindsay, Ontario.

VISKING and VISQUEEN are registered trademarks of Union Carbide Corporation.

(Below) Positioning one of the four 97′ long, 32-ton prestressed beams for the gymnasium. Beams were trucked to job from manufacturer's Berlin plant.



PRECAST STRUCTURAL CONCRETE

CHOSEN FOR ECONOMY, APPEARANCE, AND QUICK DELIVERY

Architect: Johnson & Boutin, Washington, D. C.
Contractor: Joseph Bahen Construction Co., Washington, D. C.
Structural Engr.: Carl Hansen, Silver Springs, Md.
Precast, Prestressed Units Manufactured and Erected by: Formigli Corporation, Berlin & Williamstown Junction, N. J.
Ready Mix Concrete for All Structural Units Supplied by: Trap Rock Industries Inc., Palmyra, N. J.

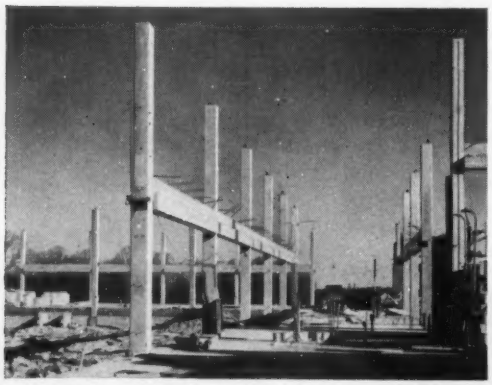
Since much of the structural frame of Our Lady of Good Counsel High School in Wheaton, Md. is to be permanently exposed, appearance as well as strength is important.

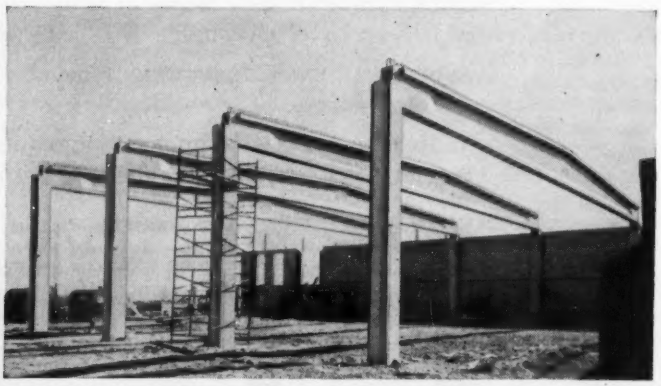
Precast concrete was chosen for the job as the most economical way to assure quality structural units with pleasing, even-textured surfaces. Moreover, precast construction permitted quick, easy erection of the structural frame, even though the work was done during the winter.

In the manufacture of both precast and prestressed units, the Formigli Corporation used concrete made with Lehigh Early Strength Cement for maximum production efficiency. Result—all units complete and ready for delivery within 60 days.

This is another example of the advantages of precast structural concrete—and Lehigh Early Strength Cement.

LEHIGH PORTLAND CEMENT COMPANY Allentown, Pa.





In addition to the four beams for the gymnasium (seen in photo at right), the school structural system required 72 precast columns, 114 spandrel beams, 190 lintels and sills, 2655 precast joists, and 1000 precast bridging pieces for the joists.

INDIAN

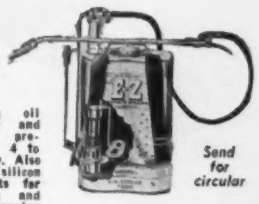
DRINKING WATER & SUPPLY TANK NO. 75G

Replaces unsanitary bucket and dipper. Portable. Push button faucet. Takes cold, clean water to workers right on the job. 5 gal. steel tank is curved to fit the back. Sturdy construction. Highly popular.

E-Z

5 gal. Knapsack Sprayer

For spraying oil on machinery and equipment to prevent rust, etc. 4 to 5 gal. capacity. Also for spraying silicon water repellents for masonry work and many other spraying purposes.



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DISCOUNT IN QUANTITY LOTS

D. B. SMITH & COMPANY

"Choice for Quality the World Over"

450 Main St., Utica 2, New York

MAYO

PNEUMATIC GROUTER

and

"PEA SHOOTER"

Simple to Operate

Highly Efficient

The Mayo Grouter quickly and easily places low-pressure grout in tunnels, mines, shafts, foundations, and subgrades. It also may be used to inject sodium silicate emulsions for stabilizing caving or running ground.

This versatile piece of equipment can readily be converted to a "Pea Shooter" for shooting Pea or "Bird's Eye" gravel back of liner plates and backpacking outside lagging plates.

Write for Free Bulletin 13 for full details and specifications.

MAYO

TUNNEL AND MINE EQUIPMENT

LANCASTER, PENNA.

SALES & SERVICE...

continued

trict manager for upper New York state, Quebec, and Ontario. Richard Slater is branch manager in Paramus, N. J.

Harnischfeger Corp.: Henry Cunningham is the new district representative for the northern Ohio territory. He will work out of Cleveland.

In the Main Office

American-Marietta Co.: John W. Spoor has been elected president of the Seaman-Andwall Corp., subsidiary of American Marietta. He replaces Kenneth C. Anderson.

Hewitt-Robins Inc.: Austin Goodyear has been elected president of the company to succeed Thomas Robins, Jr., who has been both president and board chairman. Robins will continue as chairman of the board and chief executive officer.

Associations

Expansion Joint Institute: Wallace C. Fischer, of Servicised Products Corp., has been elected to the board of directors and office of president. William E. Hagemeister was elected vice president and director. H. G. Meadows was elected treasurer and director. F. W. Lagerquist, a past president of the Institute, was also elected to the board of directors.

Internal Combustion Engine Institute: L. F. Shoemaker of the Allis-Chalmers Co. was elected president. Other officers for 1958 include Commander A. D. Marks, Hercules Motors Corp., vice president; H. H. Howard, Caterpillar Tractor Co., treasurer; and James V. Doe, Willys Motors, Inc., secretary.

Special Mention

Quick-Way Truck Shovel Co.: A $12 million contract for 400 truck-mounted power shovels has been awarded by the U. S. Army to the Quick-Way Shovel Co. of Denver, Colo. This is the largest peacetime purchase of such equipment ever made by the Army. The 40 units will be built to Army specifications and are somewhat larger than the machines in the regular line.

ONE MAN

White

VIBRATOR

Write for prices and specifications on America's safest, easy-to-handle vibrators with 115 volt AC-DC motor in head. Also new HI-CYCLE model ... and flexible shaft models, electric or gasoline engine.

WHITE MANUFACTURING CO.

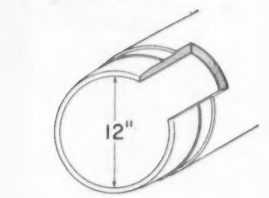
Elkhart 6, Indiana

Now! Transite Sewer variety

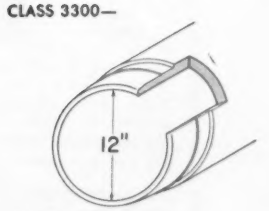
Transite's Ring-Tite® Coupling is designed for high-speed assembly . . . presents no problem in joining lengths of varying crushing strengths or diameters.

CLASS 1500—

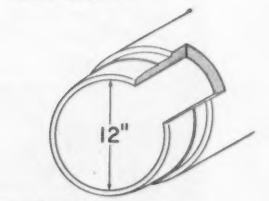
CLASS 2400—



CLASS 3300—



CLASS 4000—



CLASS 5000—

Transite Sewer Pipe now classed by Standardized Crushing Strengths

Based on A.S.T.M. 3-edge bearing method (strength in lbs. per lineal foot)

Size Inches	Class 1500	Class 2400	Class 3300	Class 4000	Class 5000
6	1500	2400	3300	—	—
8	1500	2400	3300	—	—
10	1500	2400	3300	4000	5000
12	1500	2400	3300	4000	5000
14	—	2400	3300	4000	5000
16	—	2400	3300	4000	5000
18	—	2400	3300	4000	5000
20	—	2400	3300	4000	5000
24	—	2400	3300	4000	5000
30	—	—	3300	4000	5000
36	—	—	—	4000	5000

Pipe is available in a wide of new crushing strengths

Progressive new concept permits greater efficiency in sewer design . . . reduces overall costs through closer matching of crushing strengths to needs!

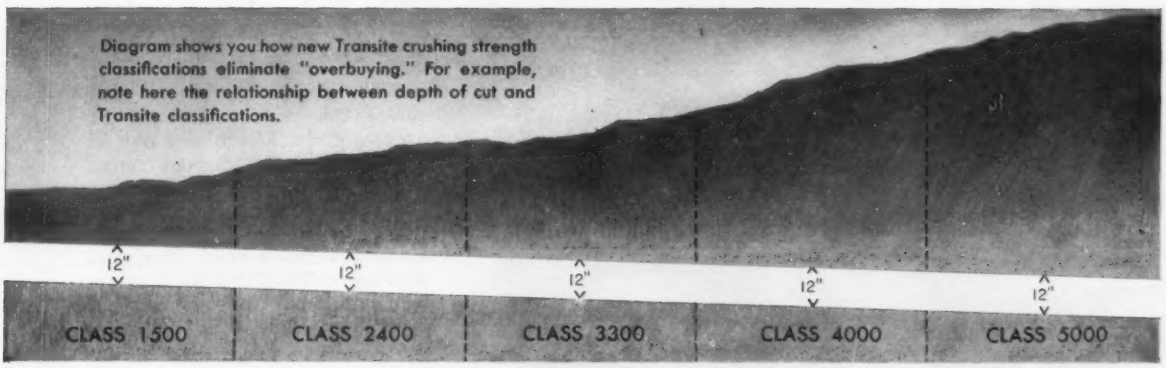
HERE'S THE BIGGEST sewer pipe advance in years! In a revolutionary move, Johns-Manville introduces five new sewer pipe classifications to greatly simplify accurate sewer pipe specification . . . permitting overall cost saving to a degree never before possible.

Through improved manufacturing methods, Johns-Manville brings you Transite Sewer Pipe in a variety of the more widely needed crushing strengths: 1500, 2400, 3300, 4000, and 5000 lbs. . . . in 11 different diameters ranging from 6″ to 36″ (*see chart*).

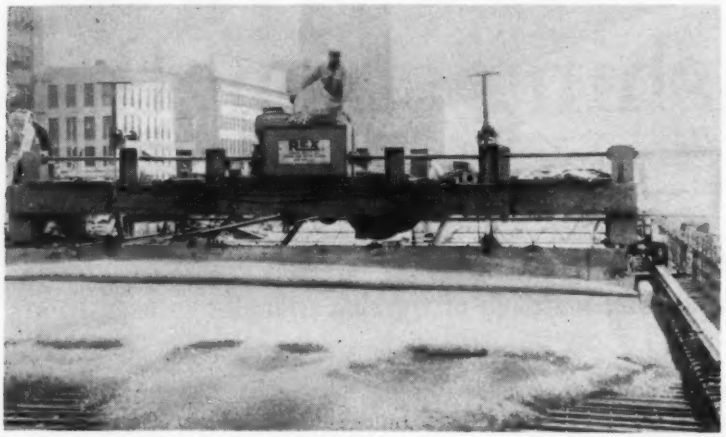
Permits greater efficiency in system design. To the engineer, the new Transite crushing strengths mean new ease in achieving greater efficiency in sewer design. For now he can plan pipe layouts as he has always wanted—selecting pipe on the basis of depth of cut, width of trench, type of soil and manner of bedding. The result: far greater overall economy through use of more realistic safety factors . . . reduction in the need for over-design . . . with costly concrete encasement and cradling needed in fewer areas.

Let us send you TR-94A, Sewer Design Flow Chart and DS-366, Transite Specifications. Write Johns-Manville, Box 14, N.Y. 16, N.Y. In Canada, Port Credit, Ont.

JOHNS-MANVILLE



Construction Equipment News...

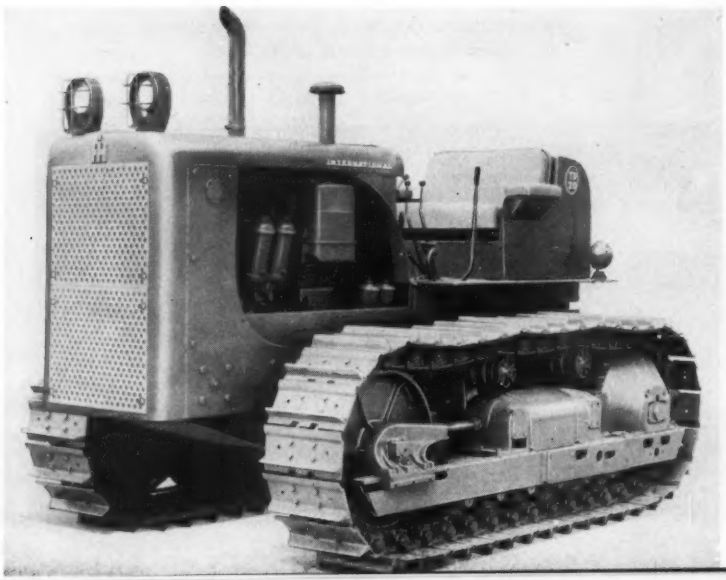


For Bridge Decks

Chain Belt's new Rex bridge finisher is designed for use on concrete bridge decks, but it can be converted into a standard road finishing machine in a short time. Screed elevation and frame width are easily adjustable. Rex Powered-Frame widening is available, as is a quick-change crown attachment. A transportation rig with pneumatic tires, hydraulic lifting pedestal, and a hinged towing tongue provide fast travel between jobs. Specifications vary to meet job needs.—**Chain Belt Co., Milwaukee, Wisc.**

Crawler Crane Lifts More Than It Weighs

The new Koehring 545 Sprawler is shown lifting 90,000 lb. with a 40-ft boom—which is 11,000 lb more than the crane's working weight. Without outriggers, the 545 can "walk" with a 61,500-lb load. Standard crawlers are 14½-ft long. With 30-in. shoes, overall width is 11 ft 2 in. The Sprawler is easily transportable. It is only 12½ ft high with boom and A-frame removed, and it can be stripped down to 47,500 lb. The counterweight is power removed. **Koehring Div., Koehring Co, Milwaukee 16, Wisc.**



IH Adds New Crawler With 134-hp Diesel

International Harvester's new TD-20 crawler tractor features a six-speed, full-reverse transmission with single-lever control. It also has shuttle-bar control that moves the tractor forward or backward quickly in any one of six speed ranges. Speeds range from 1.5 to 7.7 mph forward, and 1.8 to 8.4 mph in reverse. Its diesel engine is rated at 134-net-engine-hp at 1,550 rpm. Maximum drawbar pull is 27,500 lb. Working weight is 29,300 lb.—**International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.**

Dismantled Quickly

Heltzel's unitized, automatically operated aggregate batching plants set up fast and dismantle quickly into three easy-to-handle sections that can be transported without special permits. The batch plants are shown with Heltzel's new E-4 cement plant, which includes an elevator and twin batchers. The entire plant is arranged "in line" so that trucks can drive straight through. All batching mechanisms are push - button - operated by the truck driver.—**Heltzel Steel Form and Iron Co., Warren, Ohio.**

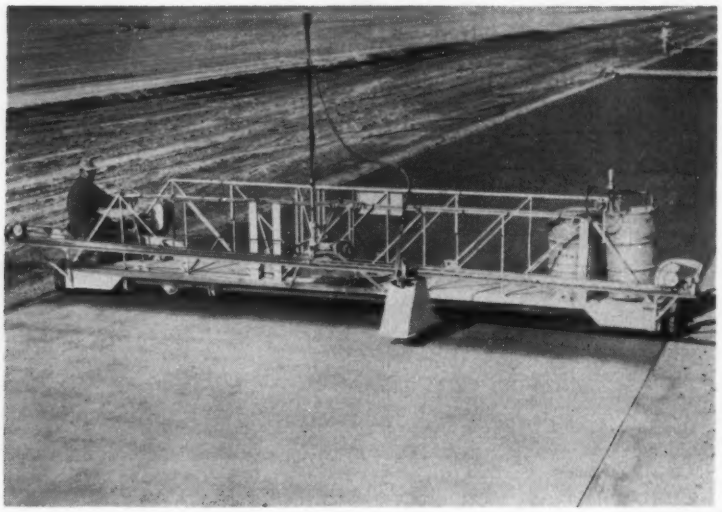
◀ Combined Compressors Provide 1,200 cfm

LeRoi's new portable rotary compressor produces up to 1,200 cfm at 100 psi—the highest rating available in a portable model. The unit is actually two 600-cfm compressors mounted on a single frame. It combines two two-stage, oil-cooled, sliding-vane-type compressors with two GM 6-71 diesel engines. Compressors can be operated independently or simultaneously. The unit is 14½ ft long, 8 ft high, and 7 ft 11 in. wide. Dry weight is only 14,700 lb. — **LeRoi Div., Westinghouse Air Brake Co., Milwaukee 1, Wisc.**

Excavator Travels At Up to 50 mph

A ⅜-yd Hopto excavator mounted on a new carrier that travels over the road at up to 50 mph has been introduced by the Badger Division of Warner & Swasey Co. The Duplex carrier has a 124-in. wheelbase and a 16,000-lb GWV rating. A new hydraulic system delivers 72 gpm to assure constant power. The backhoe has a 13½-ft digging depth. Other features include 200-deg boom swing and 180-deg wrist-action digging. — **Warner & Swasey Co., 5701 Carnegie Ave., Cleveland, Ohio.**

continued on next page



Sprayer Synchronized to Reduce Waste

The stroke angle of the new Lewis Membrane curing compound spray machine is preset and the speed of the nozzle is automatically synchronized with the forward speed of the machine to produce a uniform and economical spray pattern. The spray stroke is instantly reversed at the end of each stroke to reduce waste. The standard machine is adjustable through 24 to 25-ft widths and special rigs up to 36 ft wide are available.—**Concrete Machinery Ltd., 9530 E. Rush St., El Monte, Calif.**

Wooldridge Scraper Travels at 31 mph

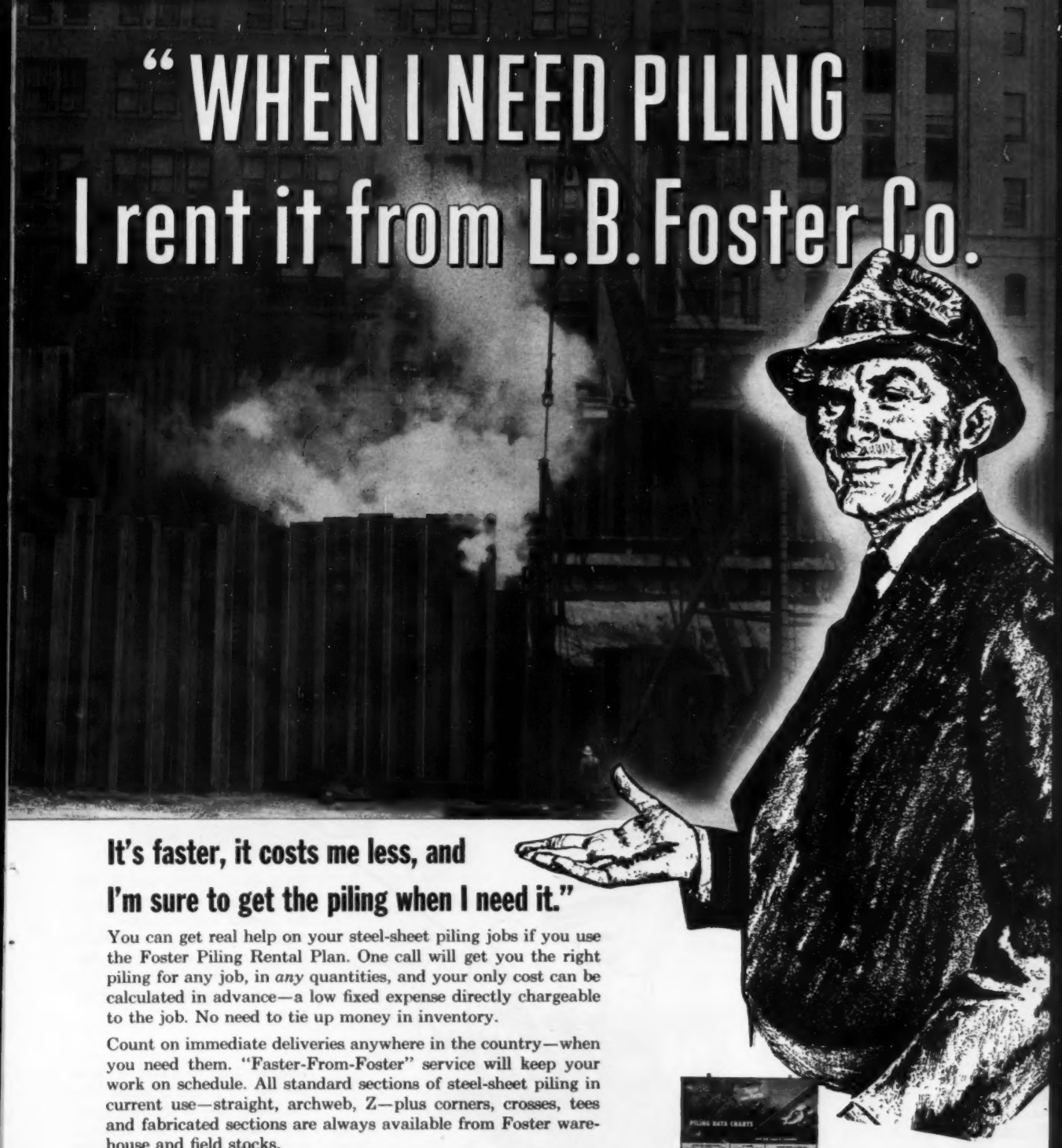
Latest addition to the Wooldridge line is a self-propelled scraper that can haul 21-ton loads at 31 mph. Maximum heaped capacity is 21 yd and struck capacity is 15 yd. Called the model CW 215, the scraper is powered by a 240-hp Cummins diesel engine. The transmission offers 10 forward and two reverse speeds. Wooldridge's Rotogear hydraulic power steering is standard. The pan is interchangeable with a 25-ton rear dumper.—**Continental Copper & Steel Industries, Inc., Woolbridge Div., Sunnyvale, Calif.**

Newest Duo-Pactor Has Dump Body

The dump body feature of the new Duo-Pactor allows ballast to be emptied in seconds. The dump-type ballast box also allows the unit to be used as an 8-12-yd off-highway hauler. A hydraulic lift raises the body for dumping. The compactor, which weighs 18,000 lb empty, carries up to 40,000 lb of ballast. The Duo-Pactor still offers the advantages of both a steel-roll unit and a pneumatic-tired roller. An 88-hp engine powers the tractor. — **Seaman-Gunnison Corp., 2763 E. 27th St., Milwaukee 15, Wisc.**

continued on page 155

"WHEN I NEED PILING I rent it from L.B. Foster Co.



It's faster, it costs me less, and I'm sure to get the piling when I need it."

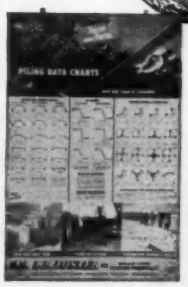
You can get real help on your steel-sheet piling jobs if you use the Foster Piling Rental Plan. One call will get you the right piling for any job, in *any* quantities, and your only cost can be calculated in advance—a low fixed expense directly chargeable to the job. No need to tie up money in inventory.

Count on immediate deliveries anywhere in the country—when you need them. "Faster-From-Foster" service will keep your work on schedule. All standard sections of steel-sheet piling in current use—straight, archweb, Z—plus corners, crosses, tees and fabricated sections are always available from Foster warehouse and field stocks.

Try us for complete contractor service—one call for piling, pipe, highway products, rail.

"FASTER FROM FOSTER" CONTRACTOR SERVICES

Rental Steel-Sheet Piling
Pipe Pile • H-Pile • Rail Pile
Foster Lightweight Piling
Highway Guard Rail
Bridge Flooring & Decking
Aluminum Bridge Railing
& Sign Structures

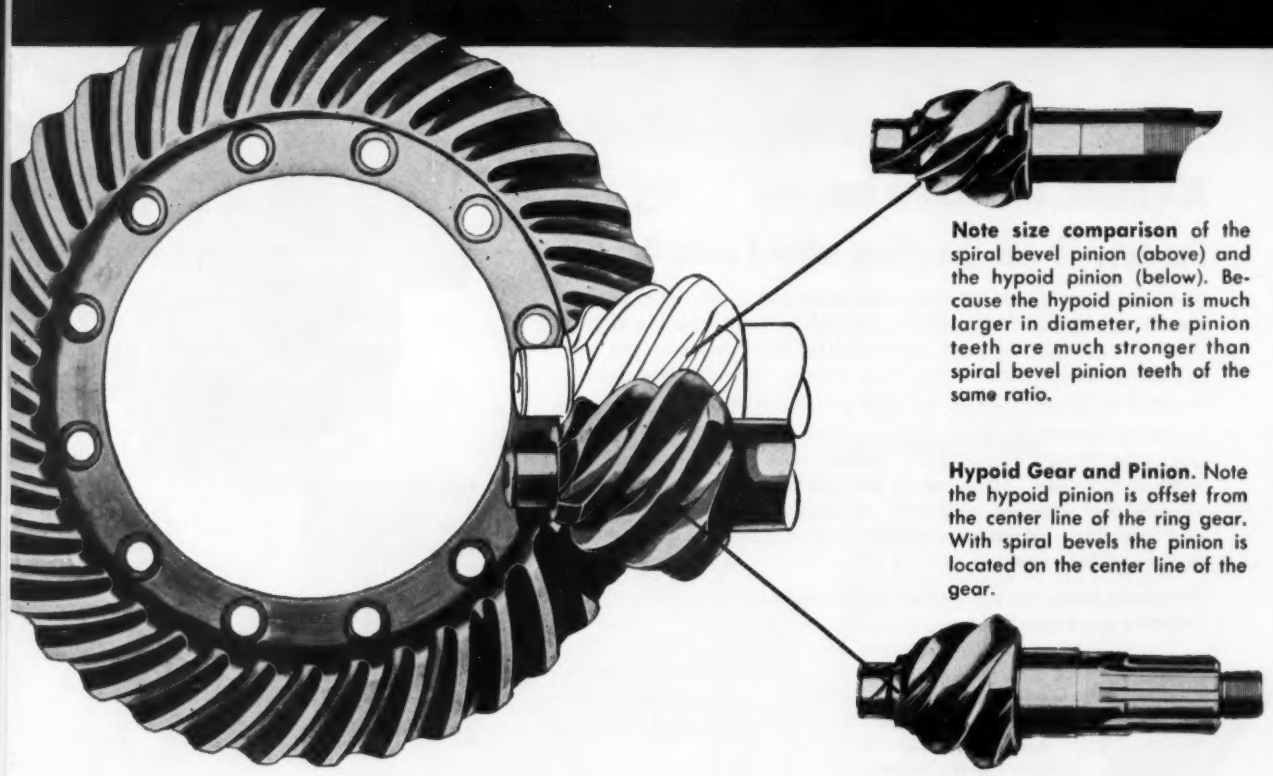


To help specify the exact piling you need, send for Foster's Piling Wall Chart CM-6.

L.B. FOSTER CO.

PITTSBURGH 30 • NEW YORK 7 • ATLANTA 8 • CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5

Hypoid Gears 30% More Torque Than Spiral Bevels!



Note size comparison of the spiral bevel pinion (above) and the hypoid pinion (below). Because the hypoid pinion is much larger in diameter, the pinion teeth are much stronger than spiral bevel pinion teeth of the same ratio.

Hypoid Gear and Pinion. Note the hypoid pinion is offset from the center line of the ring gear. With spiral bevels the pinion is located on the center line of the gear.

Products of ROCKWELL-

Have Capacity

Timken-Detroit pioneered and developed hypoid gears for trucks of every type and capacity... and today is the acknowledged leader in the field!

A FEW OF THE MANY LEADERS WHO USE TIMKEN-DETROIT AXLES WITH HYPOID GEARS
Quinn FREIGHT LINES
DELTA LINES, INC.
RED STAR FOR Dependability
D·C DENVER CHICAGO TRUCKING CO., INC.
CONVERSE TRUCKING SERVICE
INTERSTATE MOTOR FREIGHT SYSTEM
Indianhead TRUCK LINE, INC.
Johnson Motor Lines, Inc.
MUSHROOM
SPECTOR MID-STATES

The trend of the trucking industry today is to hypoid gears, because their torque capacity is 30% greater than that of spiral bevel sets of the same ring gear diameter and ratio! The result is lower maintenance costs, greater dependability, and lower-cost operation. And, since hypoid gears do every driving axle job better . . . from the smallest single reduction axles to the largest double reductions . . . more and more operators specify them every day.

Hypoid gearing is another plus feature found in all Timken-Detroit Letter Series Single and Tandem Driving Axles!

Plants at: Detroit, Michigan
Oshkosh, Wisconsin • Kenton and Newark, Ohio
New Castle, Pennsylvania

TIMKEN Detroit AXLES
ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN
The Accepted D A Standard
TRADE MARK REGISTERED

©1958, R-S Corp.

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

STANDARD Corporation

New kind of rubber builds new cut-resistance, longer wear into every off-the-highway tire!

Tires built with Firestone Rubber-X defy slugging impacts and ax-edged snags to lower equipment down-time as no other tire material can. Combined with Firestone S/F (Shock-Fortified) Nylon, Firestone Rubber-X literally armors tires against costly impact damage. Built into a special tread design, this new rubber delivers new pull power for the worst bed or road conditions. You'll find Firestone Rubber-X off-the-highway tires outwork and outwear any other tires made! Ask your Firestone Tire Expert about these *tubed* or *tubeless* off-the-highway tires made with Firestone S/F (Shock-Fortified) Nylon and Firestone Rubber-X. *They're available at no extra cost.*

Firestone

BETTER RUBBER FROM START TO FINISH

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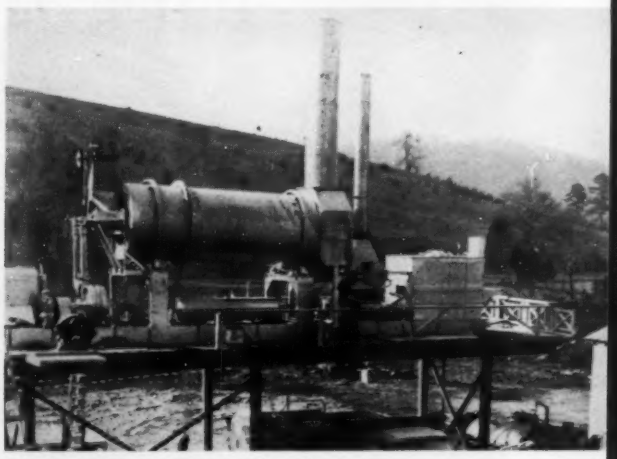
RIB EXCAVATOR® ROCK GRIP EXCAVATOR® ALL TRACTION® LOGGER

Conveyor Throws Material 60 Ft

The Jet Conveyor throws dirt, cement, and other materials a distance of 60 ft at a rate of 60 tons each 60 min. It will also discharge to a height of 30 ft, a feature that allows it to be used to throw materials into trucks, over walls, and out of trenches. The Jet Conveyor is available with a choice of either an electric motor or a gasoline engine. The machine is mounted on rubber tires.—**Contractors Supply Corp., 44-72 11th St., Long Island City 1, N.Y.**

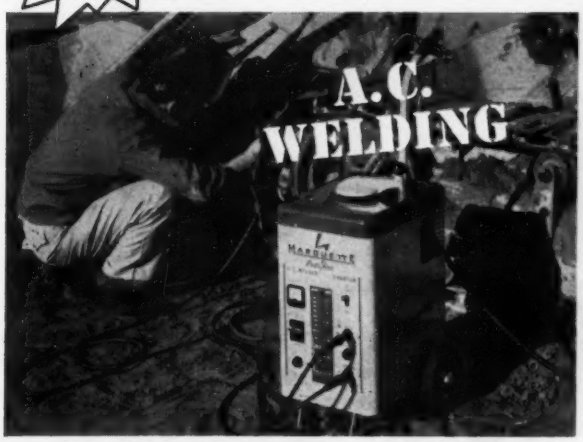


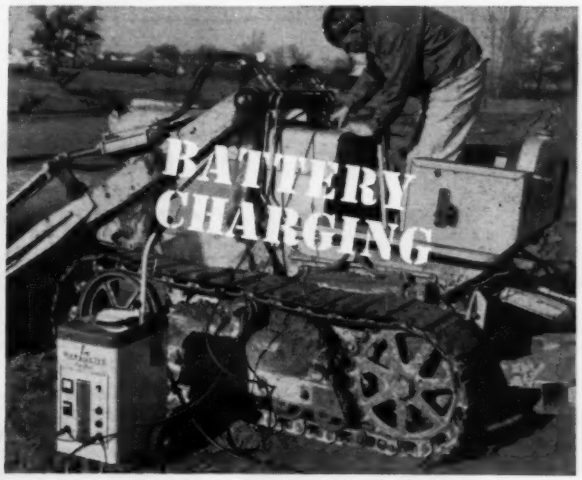
Plant Mounts on a Single Frame

A new portable asphalt plant in the 20-25-ton class has been introduced by the White Manufacturing Co. The entire plant, except for the feeder bin, is mounted on a single frame. Wheels for transportation are available. The plant includes a large, 52-in.-x12-ft dryer and an over-sized blower-burner combination. Twin or single-axle pug mixers are available.—**White Mfg. Co., Elkhart, Ind.**

continued on next page

NOW You can do both





. . . with One Unit!

The MARQUETTE *Redi-Arc*

Here it is! The Marquette *Redi-Arc* unit, two high quality machines in one . . . an ideal welder for light to medium work and a fast charger for all 6 or 12 volt batteries.

WELDING: Easy-starting arc, easily maintained throughout wide 20 to 180 Ampere range. Takes electrodes of all types 1/16" thru 3/16" . . . handles A.C. metallic arc welding and cutting plus arc torch brazing, soldering and heating jobs.

CHARGING: Flip a switch to use as a charger for all 6 and 12 volt batteries. Easily read, color-coded charging rate indicator shows correct current setting. Delivers up to 50 Amperes at 6 volts, 25 Amperes at 12 volts.

Marquette *Redi-Arc* Welder-Chargers give superb performance, service-free operation. See one soon . . . discover how you profit more with this simple, versatile machine.

MARQUETTE

MARQUETTE MANUFACTURING CO., INC.

DEPT. 8-610, 307 E. HENNEPIN AVE. • MINNEAPOLIS 14, MINN.

Backhoe Swings Through Big Arc

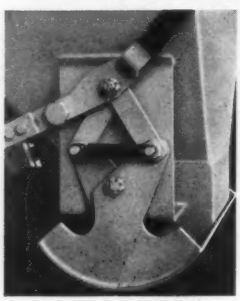
A newly designed hydraulic swing cylinder enables the Henry Mark III backhoe to swing through a continuous 200-deg arc. Designed especially for crawler tractors, the new backhoe mounting is attached to the tractor with only two pins. The maximum digging depth is 12½ ft and the maximum loading height is 8½ ft. Twelve bucket sizes, ranging in width from 12 to 38 in., are available.—**Henry Mfg. Co., Inc., Box 521, Topeka, Kan.**

Roller Features Power Steering

Littleford's 3-5-ton model 160 portable roller has full time power steering that is activated by an automotive-type steering wheel instead of by levers. A pair of rubber-tired wheels, which are hydraulically lifted 5 in. off the ground when the roller is working, make it easy to transport the rig. Wheel assembly can be removed.—**Littleford Bros., Inc., 453 E. Pearl St., Cincinnati 2, Ohio**

continued on page 158

watson metco EQUIPMENT HELPS YOU BID COMPETITIVELY



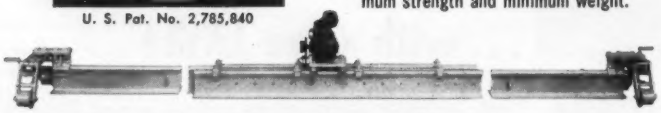
U. S. Pat. No. 2,785,840

1 HOPPER GATE

The exclusive and patented double clam shell gate is used on all Cmetco hoppers and buckets. Fast opening, positive closing action prevents waste of material . . . special design gives maximum strength and minimum weight.

2 POWER BUGGY

Cmetco Power Buggy provides fast and heavy-duty concrete handling. No operator training required and simple, efficient design means easy maintenance. Travels 17 mph and shifts from forward to reverse in an instant.



3 TELESCOPING SCREED

Cmetco Telescoping Vibratory Screed reduces manhour costs and gives you better depth compaction. Ideal for highway, bridge, slab and floor work. Exclusive construction eliminates space restrictions and need for auxiliary beams.

WRITE FOR COMPLETE INFORMATION

MANUFACTURED BY CREATIVE METALS CORP. *exclusively for* watson metco H. S. WATSON COMPANY 1316 - 67th Street EMERYVILLE, CALIFORNIA TOLEDO, OHIO

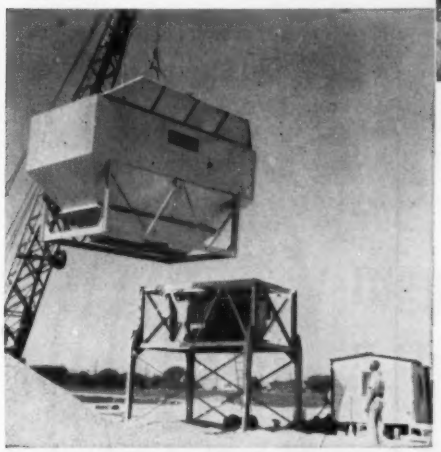
ROLA PAVERS • WOOD AND STEEL TILT-UP HARDWARE • BULL FLOATS • HOPPERS • BUCKETS ELEPHANT TRUNKS AND CHUTES • TAMPERS HAND CARTS • POWER BUGGIES • TELESCOPING AND ECONOMY VIBRATORY SCREEDS

WC-9

BETTER EQUIPMENT FOR PLACING AND FINISHING CONCRETE

If you moved your ROADBUILDERS PLANT only ONCE . . . the BUTLER TX-4 would still pay you a Bigger Profit!

Bin section is complete, ships and erects with bracing members in one piece. Rests on top of batchers. . . .Batcher section also has its own permanent bracing for transport and erection as a unit. Moreover all piping and wiring are in-place. Quick connectors for air and electricity make hook-up a matter of minutes.

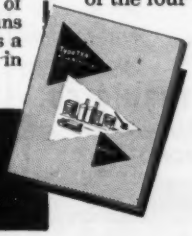


Support columns are hinged to batcher section, swing into place as batchers are raised. . . . Elevator ships in two pieces with chain and buckets installed. Cement overflow bin ships complete with support columns attached.

WORLD'S RECORDS IN BATCHING SPEEDS

Production has actually been maintained at a 15 second cycle with the TX-4. But 20 seconds is more practical for figuring costs if you can spot your trucks at such a rate. Depending on the number of batchers in your TX-4 plant this means 6, 9 or 12 batches every minute. That's a world's record in production — and in profits.

• Send for this Bulletin describing the TX-4 in great detail. The whole story is there. You should have it for the BUTLER TX-4 obsoletes every other plant now in existence.

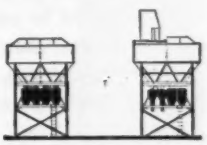


. . . And the oftener you move the more you'll appreciate the unparalleled portability of the TX-4

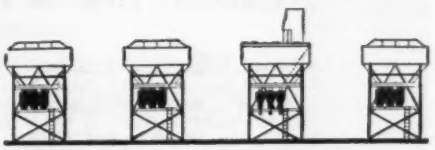
The BUTLER TX-4 Roadbuilders Plant is dismantled and erected in such a small fraction of the time required by other set-ups that you'll pocket an *extra* profit by the saving.

Start with a One Paver set-up . . . Expand Your TX-4 as you grow

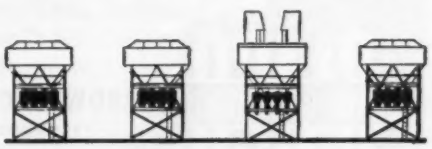
Let's assume that you are batching for one or two dual drum pavers. You start with the basic plant — two TX-4 bins, one compartmented for cement and sand, the other for two sizes of stone.



For 3 pavers simply add two more bins with batchers as shown.



And for four dual drum pavers, just add a batcher to each of the four bins.



BUTLER BIN COMPANY

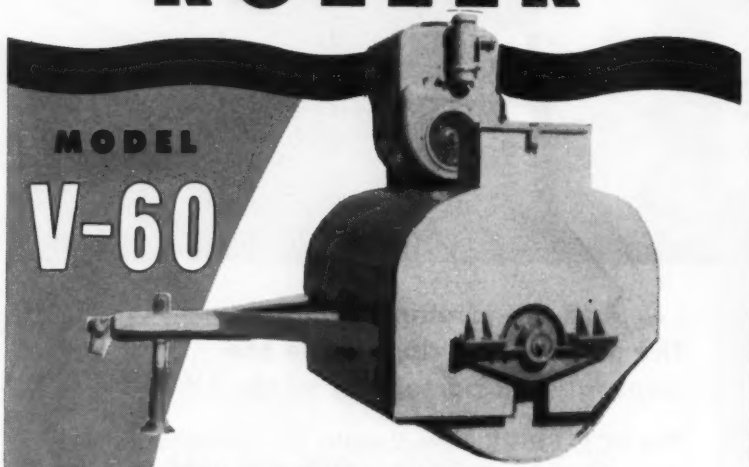
949 Blackstone Ave. • Waukesha, Wisconsin

THE NEW CONCEPT IN VIBRATORY ROLLING

BMCO
BROWNING MANUFACTURING CO.
BMCO

VIBRATING ROLLER

MODEL V-60



Built-in variable amplitude — makes possible a wide range of vibrating force directly imparted through the face of the roller. Variable frequency controlled by the engine governor throttle, affords vibrations per minute suited to various types of materials being compacted. Lower vibration frequencies mean less wear and tear on the unit, greatly reducing maintenance problems — practically eliminating downtime.

OTHER QUALITY ITEMS IN THE BMCO LINE:

PNEUMATIC ROLLER | SELF-PROPELLED ROLLER | 50 TON COMPACTOR | SHEEPSFOOT ROLLER | ROCKBUSTER

BMCO
BROWNING MANUFACTURING CO.
BMCO

For Further Information, Phone, Write or Wire

BROWNING MANUFACTURING CO.
111 HUMBLE AVE. • P. O. BOX 2707
WAlnut 3-4331 • SAN ANTONIO, TEXAS

BMCO AND ROCKBUSTER ARE COPYRIGHTED TRADEMARKS OF THE BROWNING MFG. CO.

RUGGED BUCKETS — New Young dragline buckets are designed for hard digging in rough materials. Teeth are angled for maximum penetration and outside teeth on the extreme corners of the bucket increase digging power by loosening ground ahead of the bucket cutting edge. The buckets, which are available in ⅜ to 10-yd capacities, have forged steel cutting edges, hardened alloy steel pins, and hardened bushings at all pin connections. Sealed Timken roller bearings are used in the dump block.—**Young Iron Works, 2959 1st Ave. S., Seattle 4, Wash.**

NYLON CORD — A medium-priced truck tire with all-nylon cord has been added to the B. F. Goodrich line for over-the road service. Called the Heavy-Duty Express, the tire is available in tubeless and tubed models in 13 sizes ranging from 6.07-15 to 10.00-22. Plies range from six to 12, depending on the tire size. The new tire features Goodrich's Flex-Rite nylon cord body which is said to withstand up to twice

LIMA Type 44 Pullshovel, owned by S. A. Reubel & Co., trenching near Cincinnati, Ohio.

"An extremely rugged machine...plenty of reach for deep trenching" — *says S. A. Reubel & Co.*

Back in September, 1956, S. A. Reubel & Co., of Cincinnati, Ohio, bought a LIMA Type 44 Pullshovel to do the heavy digging on its pipelaying jobs. The company tells us: "We have found the LIMA 44 an extremely rugged machine, with the power and weight to do a fine, fast job. It has plenty of reach for deep trenching and is very easy to handle. We are glad to have it working on our team."

Contractors like S. A. Reubel & Co. appreciate the speed, reliability and extra capacity of LIMAS. Here are some of the reasons these machines offer more: All gears, smaller parts and shafts that are subjected to extra wear are flame or induction hardened for longer life; long, wide crawlers for maximum stability; anti-friction bearings are used at all critical bearing points; large diameter big-capacity drums and sheaves prolong cable life; propel, swing gears, and power take-off enclosed in a sealed oil bath; torque converter (optional).

Find out more about the complete line of LIMA shovels, cranes, draglines and pullshovels with wagon, truck or crawler-mountings. They are designed and built to give you the power and stamina that pay off on every job. See your nearby LIMA distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA Construction Equipment Division, Lima, Ohio

BALDWIN · LIMA · HAMILTON

5825

Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment

TURN OVERHEAD
INTO
PROFIT

MOVE YOUR EQUIPMENT
Quickly — Safely — Easily — Economically —
with a *Henderson* "HYDRA-CARRY"

ONE MAN CAN HANDLE THE WHOLE JOB

- Operates off Power-Take-Off of the truck.
- Double Action Hydraulic Cylinders hold load at any position.
- Platform hydraulically locks in firm position for transporting.
- Hydraulic Winch pulls load onto truck bed smoothly and safely.
- Standard unit will load tractors weighing in excess of 6 tons. Heavy-Duty units load 8 tons or more.

Available with or without platform for standard truck lengths.

THE STURDIEST MOST ECONOMICAL UNIT YOU CAN BUY

HENDERSON MFG. CO., INC. Cedar Rapids, Iowa

On the job
PORTABLE
POWER
cuts work time...cuts costs!

- Extra Overload Capacity
- Dependable Duty
- Minimum Maintenance

Katolight Portable
POWER PLANTS

With instant dependable electric power on the job, work speeds up . . . costs go down.

Katolight Portable Power Plants give your crews "plug-in" electricity anywhere, whenever it is wanted . . . power to operate all types of electrical tools or for steady, bright flood lighting. Standard sizes and models for every portable, standby or continuous use from 850 watts to 125 KW. Special Units up to 500 KVA to meet requirements.

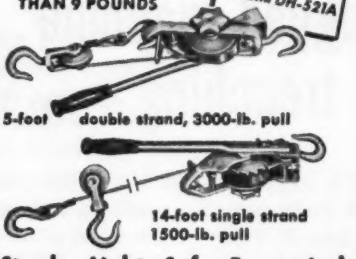
Write Today for

KATOLIGHT CORPORATION
BOX 89-106 MANKATO, MINNESOTA

WRIGHT
Type "R" Pull-A-Ways

WEIGH LESS THAN 9 POUNDS

Write for Bulletin DH-521A



Sturdy • Light • Safe • Economical

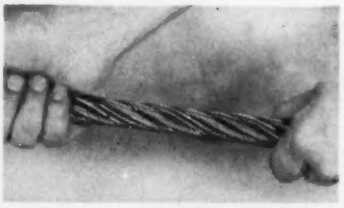
Here are some of the fine features of WRIGHT Type "R" Pull-A-Ways:

Drop forged ductile aluminum alloy frame • Wire hoist cable of maximum strength and flexibility • 8" minimum handle movement—for close hook-ups • 2" drum hub for cable • No oiling needed • Drop forged steel hooks • Removable, reversible "Safety Handle" that bends before any part of hoist is overloaded • Automatic load lowering, with positive control for safety. ACCO

Write our York, Pa., Office for Bulletin DH-521A for full story

Wright Hoist Division
AMERICAN CHAIN & CABLE
Bridgeport, Conn. • York, Pa.

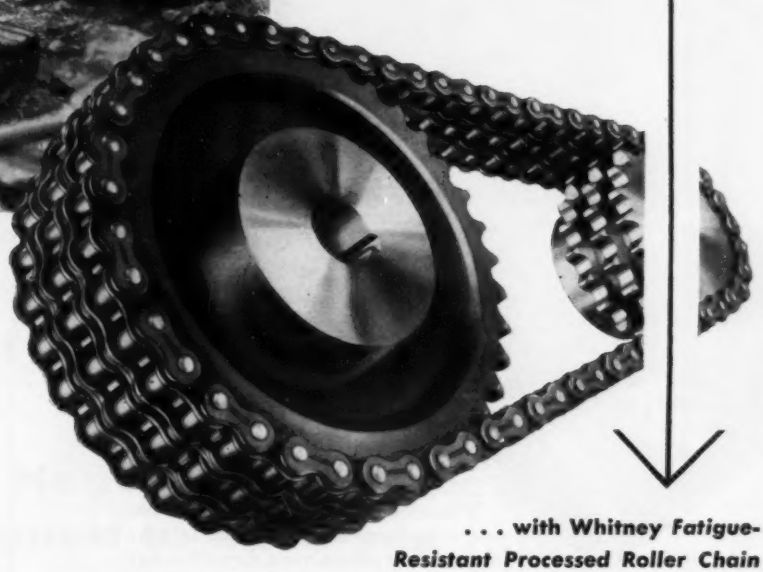
the impact of ordinary cord materials and to resist heat blow-outs and flex breaks. This means that the tire can be retreaded several times to provide extra miles of service. Two chafing strips reinforce the lower sidewalls of the tire. There are no cross threads to cause crimping and chafing.—**B. F. Goodrich Tire Co., Akron, Ohio.**



TOUGH BUT FLEXIBLE—A new type of wire rope that is said to combine the flexibility and abrasion resistance of Lang lay rope with the stability of regular lay has been introduced by John A. Roebling's Sons Corp. Called Herringbone wire rope, it is fabricated with two pairs of Lang lay strands separated by two strands or regular lay. This design puts tough, relatively large strands on the outside to take care of pressure and abrasion caused by contact with sheaves and drums. The inside wires are smaller and more flexible to withstand bending stresses. The new rope has been tested successfully for the last 3 yr on scrapers, draglines, shovels, and general hoisting machines. These tests show the new rope to be flexible, resistant to shock and abrasion, and easy to spool, according to the manufacturer.—**Wire Rope Div., J. A. Roebling's Sons Corp., Trenton 2, N.J.**

RUGGED GENERATOR—Delco-Remy Division of General Motors has developed a new alternating current generator for commercial vehicles that produces up to 215-amp continuous output at cruising speeds and 125 amps when the engine idles. The new unit is a totally enclosed, brushless generator with compact, built-in silicon rectifiers. It is controlled by a transistor regulator. The entire generator-rectifier assembly is cooled by a continuous flow of engine oil—a design that eliminates the need for forced air cooling. The oil-cooling principal

HIT PAY DIRT



. . . with Whitney *Fatigue-Resistant Processed Roller Chain*

This new advancement, combined with fine heat treated alloy steels and Whitney's rigid quality controls, is helping to keep construction on schedule profitably. With Whitney Roller Chain on your equipment, you get ruggedness to spare — assurance of new durability and freedom from downtime.

Factory trained Field Engineers are always available for practical recommendations on all of your chain and sprocket design problems.

And call on your local Whitney Chain Distributor to help you cut maintenance and downtime costs. He'll be glad to help you with fast, off-the-shelf service from a complete line of ASA roller chains and stock sprockets.

New . . . Whitney's packaging includes plastic enclosed disassembled chain parts for easy chain assembly, handling and parts inventory . . . another exclusive Whitney service!

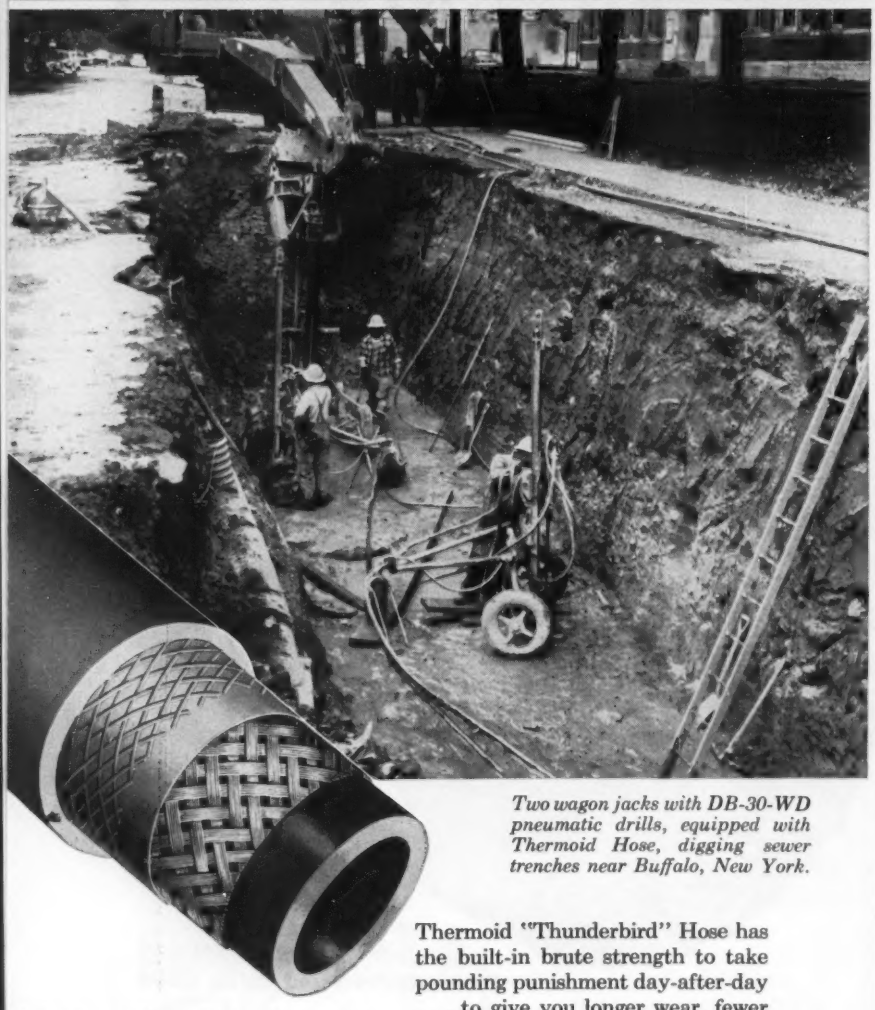
Whitney

. CHAIN COMPANY

315J HAMILTON STREET • HARTFORD 2, CONNECTICUT

ROLLER CHAIN • CONVEYOR CHAIN • SPROCKETS • FLEXIBLE COUPLINGS • WHITNEY-TORMAG DRIVES

Thermoid Hose is built to take a beating!

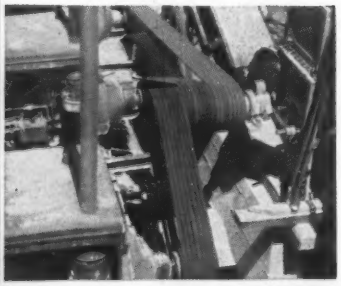


Two wagon jacks with DB-30-WD pneumatic drills, equipped with Thermoid Hose, digging sewer trenches near Buffalo, New York.

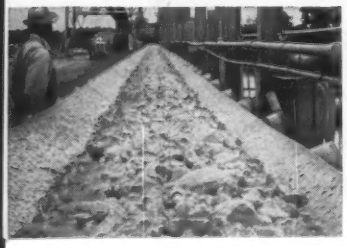
Thermoid "Thunderbird" Hose has the built-in brute strength to take pounding punishment day-after-day . . . to give you longer wear, fewer replacements. *You can forget about down-time.*

"Thunderbird" Hose is just one of the Thermoid products designed to help you get the most profit out of your investment in construction equipment. Your local Thermoid Distributor can recommend the Thermoid Hose, Multi-V Belt or Conveyor Belting designed to do a specific job *best.*

Make Thermoid your choice too, for Multi-V Belts . . .



. . . and Conveyor Belting

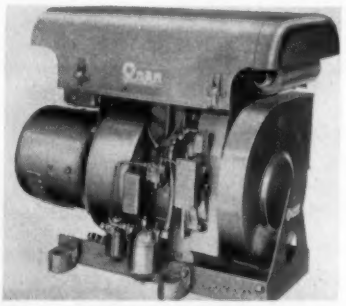


Thermoid

Thermoid Company
Trenton, New Jersey
Nephi, Utah

makes it possible to completely seal the unit against dust and other foreign matter. Because there are no brushes, slip rings, or air filters service requirements are kept at a minimum. The new transistor regulator, which has no moving parts, functions electrically. —**Delco-Remy Div., GMC, Anderson, Ind.**

POWER DRIVER—Trigger activation, push-type replacement of barrel units, and a shape contoured to fit the hand—these are features of the new Velocity Green Hornet power driver. The tool drives threaded or headed studs into concrete and steel with energy created by the discharge of a blank cartridge. Easily inserted, interchangeable barrels enable the one tool to drive either ¼ or ⅜-in. studs.—**Velocity Power Tool Co., 201 N. Braddock Ave., Pittsburgh 8, Penn.**



VACUUM COOLED—Onan's new 3,000-w diesel electric generating plant features the company's Vacu-Flo cooling system. This new vacuum cooling system uses a powerful centrifugal blower to pull cooling air through the generator and over heated engine parts. The heated air is expelled through a duct to the outside. This cooling arrangement enables the new Onan DSL plant to be installed in enclosed compartments in a space only slightly larger than the unit and its ac-

Dump body mounted on Dodge 900 chassis with Custom cab.

Dodge Heavy-Duty Finance Plan is designed to save you money!

Need a new truck, but need to watch your working capital, too? The Dodge retail finance plan for heavy-duty trucks was designed for just that situation. It lets you operate modern, efficient trucks without burdening yourself with excessive finance charges.

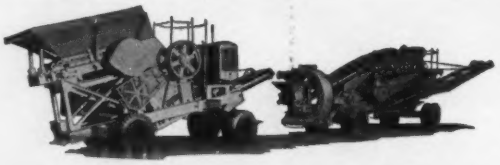
Designed with the same understanding of truck problems that has made Dodge *Power Giants* outstanding, the Dodge Heavy-Duty Retail Finance Plan is tailored to your needs. Whether you need one truck or several, you can finance your purchase with a minimum down payment, and with lowest financing cost. Payments can be arranged over an extended period.

What kind of equipment can be financed with this plan? Any Dodge medium-duty, heavy-duty (400 through 900 models) or four-wheel-drive trucks, plus extra equipment, including bodies mounted on the trucks.

This new plan makes it both easy and economical for you to get *Power-Giant* advantages: exclusive Power-Dome V-8 engines that keep maintenance at a minimum . . . rugged "Job-Rated" construction . . . famous Dodge economy and dependability . . . advanced Dodge styling.

Let your Dodge truck dealer show you how this Heavy-Duty Retail Finance Plan helps truck operators with established credit own thrifty new Dodge *Power Giants*. See your dealer soon.

DODGE *Power Giants*



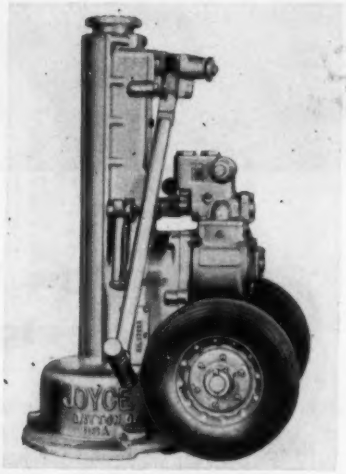
Gruendler Portable Two-Unit Aggregate Producer

For ruggedness, large capacity, flexible and economical operation where and when you want it. Combination consists of a Primary Cruishing Unit which conveys first break rock to the Secondary Crushing and Screening Unit with multiple Conveyors. The classified crushed material is conveyed to stock piles or to Trucks. Backed by 73 years of engineering know-how. For other Mobile or Stationary Crushing, Screening and Material Handling Equipment—Write for illustrated bulletins BR-35-1A and 1B and information and name of Distributor.

GRUENDLER CRUSHER & PULVERIZER CO.
DEPT. CM-658, 2915 N. MARKET ST., ST. LOUIS 6, MO.

SR . . . the dc rectifier type welder with new completely sealed nimetallic rectifier, new transformer and new weld stabilized circuit. Result is easiest arc starting ever; maximum arc stability; sounder, denser welds; current that handles all electrodes in all positions! Four models, 200 to 600 amps.
SRH . . . the same revolutionary improvements that set the Gold Star SR above and beyond the performance standards ever before achieved by a dc rectifier type welder. Designed primarily for compactness, the SRH is only 30½" high — is ideally suited for stacking or paralleling in minimum space. Three models, 200 to 400 amps.
The miller GOLD STAR ALL STAR LINE
300 . . . combination ac/dc welder design comes of age with this new Miller model. Features: new magnetic amplifier circuit; improved wave form; new arc starting control; three electrically controlled current ranges for finest adjustment; instant changeover from ac to dc; built-in high frequency. An entirely fresh concept for inert gas and metallic welding. Four basic models with kits available to convert to seven different types of welders.
300-M . . . an ac welder for inert gas and metallic arc processes. Combines unequalled welding characteristics with Miller's unique electric control circuit which permits precise slow or fast start. Features: built-in high frequency, primary contactor and 7½ KVA control transformer. Offered in three basic models of from 200 to 400 amperes with optional water and gas controls available.
Complete particulars on any of the above welders will be sent promptly.
miller ELECTRIC MANUFACTURING COMPANY, INC. Appleton, Wisconsin
Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal, P. Q.

cessories. Because of its compact size and unique cooling system, the plant is well suited for jobs that require mobility and portability. Weighing only 470 lb, the unit can be taken anywhere in its own trailer or it can be mounted in the rear of a pick-up truck. A steel hood protects the plant against weather or falling construction materials. Power for the generator is supplied by an Onan four-cycle, single-cylinder diesel engine. The Onan generator is the four-pole, single-ball-bearing type. It is directly connected to the engine. A control box mounted over, but away from, the generator contains all necessary controls, meters, and switches. In addition to standard 115, 115/230, 230-v, 60-cycle units, plants can be had with 24-30, 32-40, and 110-140-v for battery charging. Fifty-cycle models, rated at 2,500 w, are also available.—**D. W. Onan & Sons, Inc., Minneapolis 14, Minn.**

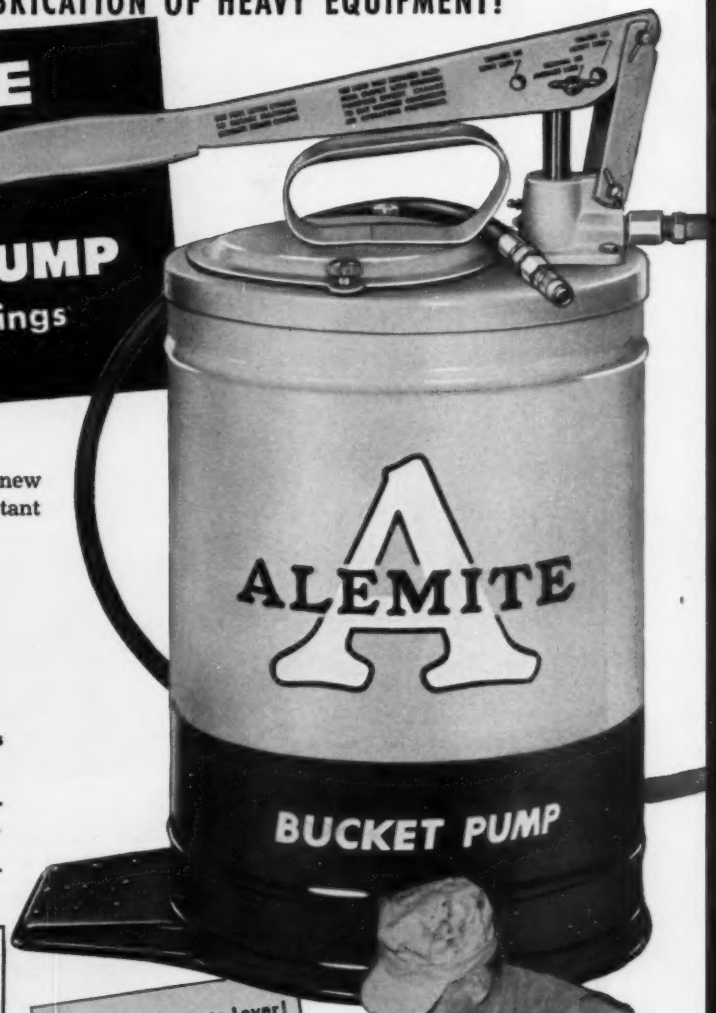


HEAVY-DUTY JACK — A new 25-ton capacity jack has been added to the Joyce-Cridland line of air motor-powered equipment. Called the 1725-R, the jack is recommended for heavy-duty applications in the shop or in the field. The easily portable jack is equipped with a trundling handle and large semi-pneumatic tires. Power is provided by an Ingersoll-Rand air motor. While the jack's standard lifting cap is 28 in. from the ground, Joyce-Cridland's exclusive toe lift can be quickly slipped into place to allow the rig to lift lower loads. Other features include anti-fric-

NOW! A PORTABLE BUCKET PUMP WITH ADJUSTABLE LEVERAGE SAVES TIME AND MONEY IN LUBRICATION OF HEAVY EQUIPMENT!

NEW ALEMITE "BIG-A" PORTABLE BUCKET PUMP

Lubricates hundreds of bearings with fewer refillings!



The all-new design and construction features of the new Alemite "Big-A" Bucket Pump bring you these important advantages:

- **Handles either oil or grease!**
- **Adjustable 3 ways, for —**
  1. **Light or heavy lubricants.**
  2. **Cold weather.**
  3. **Pressures from 2,500 to 5,000 lbs.**
- **Easiest to carry!** Oval shape prevents bucket from bumping leg.
- **Easiest to fill!** Rugged cover is gasket-sealed . . . opens in a jiffy for fast filling.
- **Easiest to service!** One wrench disassembles entire unit.

SPECIAL ALEMITE "BIG-A" FEATURES!

- **Easily handles all lubricants.** Ends air pocket trouble and channeling.
- **New foot valve design assures full pressure** on every stroke.
- **Operates at top efficiency,** using any lubricant . . . in any weather.
- **Lube stays refinery clean.** No dirt or moisture entrance, no spilling grease.
- **Permanent pressure seal never needs attention.** Provides permanent protection.

- **Exclusive Adjusto Lever!**
- **35-lb. Capacity!**
- **Hard Chrome Piston!**
- **Non-tilt Foot Rest!**
- **7 Models—for all types of lube fittings!**

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ALEMITE REG. U. S. PAT. OFF.

A Division of STEWART-WARNER CORPORATION

For complete information, write Alemite, Dept. P-68
1850 Diversey Parkway, Chicago 14, Ill.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Profitable Pumping

A pump that's light enough to carry, yet big enough to handle all your heavy-duty jobs is as good as money in the bank. That's what contractors are saying about the new Homelite Diaphragm Pump. Weighs only 120 pounds and handles anything . . . sand, mud, solids, muck. Pumps up to 5,000 gallons per hour. Has a guaranteed suction lift of 28 feet and total head up to 50 feet, including friction.

Foolproof in every way. Built for long, rugged service. Flapper valves have special self-cleaning action to prevent clogging. Flows at steady rate.

Gears are totally enclosed. Mounted on vibrationproof spring skids for steady footing.

Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
PUMPS GENERATORS • CHAIN SAWS BLOWERS

HOMELITE • A DIVISION OF TEXTRON INC., 1006 RIVERDALE AVE., PORT CHESTER, N.Y.
In Canada — Terry Machinery Co., Ltd.

Complete Line of Homelite Carryable Construction Equipment Now Available

Self-priming Centrifugal Pumps... Capacities: 5500 to 15,000 gph. Sizes: 1½" to 3". Diaphragm pump also available.

Chain Saws For Every Job . . . 4 to 7 H.P. . . . 19 to 29 lbs. Brush cutter and clearing attachments also available.

Gasoline Engine-Driven AC Generators . . . Easily carried. Capacities: 1500 to 3000 watts. 115 and 230 volts. High-cycle model also available.

HOMELITE 1006
a division of Textron Inc.
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Please send full information on your:
Pumps ☐ Generators ☐ Chain Saws ☐
Vibrators ☐ Builders Hammers ☐ Electric
Paving Breakers ☐ Electric Rock Drill ☐

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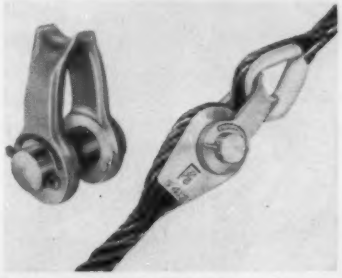
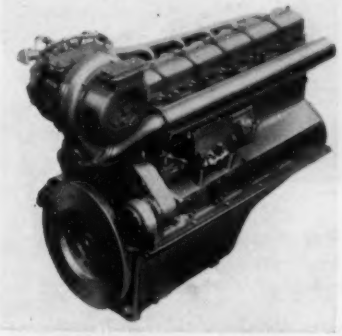
Company.....
Address.....
City..... State.....

tion bearings, pressure lube fittings, automatic shut-off at top and bottom of the rise, and positive safety controls. The jack is 28 in. high in the closed position and the piston rises 18 in. The price with toe lift is $685.—**Jack Div., Joyce-Cridland Co., 2027 E. 1st St., Dayton 3, Ohio.**

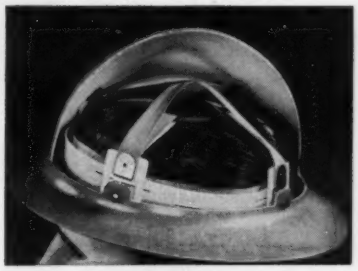


SAFE CONNECTION — A new clevis fitting designed for making fast, safe pendant connections on crane booms is now available from Crosby-Laughlin Division, American Hoist & Derrick Co. Called the boom pendant clevis, it is quickly and easily installed by placing it through one thimble and joining it with a pin to a solid thimble on the next pendant section. The new lightweight connection is said to reduce pendant vibration and rope flexing. It is suggested for use with Crosby-Laughlin S-414 thimbles and S-412 solid thimbles. — **Crosby-Laughlin Div., American Hoist & Derrick Co., Box 570, Fort Wayne, Ind.**



TURBOCHARGER DIESEL—The Mercedes-Benz model MB 836Bb diesel engine, a turbocharged unit in the 325-525-hp range, is now available in the United States, according to the Utica Division of Curtiss-Wright Corp. The engine is a lightweight, six-cylinder, four-cycle, liquid-cooled model

NEW M-S-A® SUSPENSION



THE DOUBLE CRADLE GIVES YOU

1

"FIXED-CROWN" CLEARANCE

2

ADJUSTABLE COMFORT

The new M-S-A "Fixed-Crown" Suspension for Skullgard Hats and Caps more than meets the Federal specifications of at least a 1¼" crown clearance between the wearer's head and the inside top of the shell.

This crown clearance—so important when a heavy object falls on the hat—is made tamper-proof by a permanently fixed upper cradle providing a built-in margin of safety.

The lower cradle, the one for comfort, is adjustable to the wearer's own personal requirements. But this comfort adjustment won't affect that extra margin of protection in the upper cradle.

In addition to the "Fixed-Crown" clearance, the new suspension offers these other major features: handy locked-in suspension; no pressure points; air cushion sweatband; fast size adjustment; clean, long-wearing plastic webbing.

Get in touch with the MSA man for a demonstration. No obligation. And write us for informative new bulletin.

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• to exact width and depth specifications
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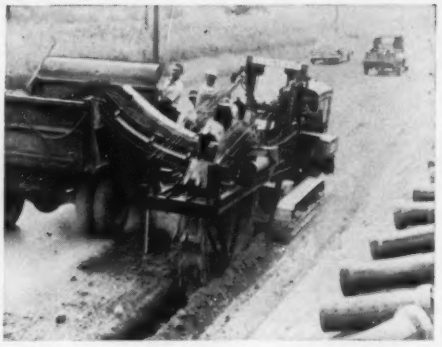

SAVE MORE

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LAYS PIPE
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• fast, clean
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TAMPS FILL
• to compaction specs
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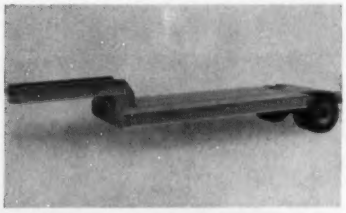
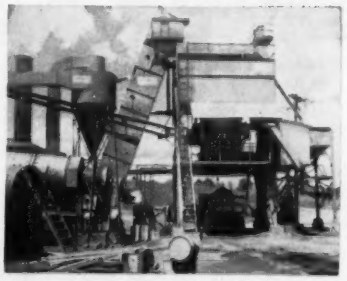
with a compression ratio of 16:1. The engine, which weighs 4,830 lb, is 84 in. long, 41 in. wide, and 64 in. high. Its combustion system is of the Daimler-Benz pre-combustion chamber type, and it uses Bosch injection pumps and nozzles. Glow plugs are standard equipment, as are such other engineering features as an aluminum alloy cylinder block, pistons, and oil pan; an easily adjustable valve actuating mechanism; four-valve cylinder heads; and a lubricating system that employs a separate pump for the lube oil cooler. — **Curtiss-Wright Corp., Utica Div., Utica, Mich.**



EQUIPMENT CARRIER—A new 15-ton capacity rear-loading trailer, the C15S-A, has been added to the line marketed by the Martin Trailer Division of the Hyster Co. The trailer has an 8x13-ft platform and an overall length of 22 1/3 ft from the centerline of the kingpin to the rear of the trailer. It has a 58-in. gooseneck. The trailer carries four 10.00-15, 14-ply tires on a single, cambered axle. Standard equipment includes air brakes, ICC-approved lights, reflectors, turn signals and identification lights. The platform area is decked longitudinally with hardwood. Martin trailers are available through Caterpillar dealers.—**Hyster Co., Martin Trailer Div., Kewanee, Ill.**



STATIONARY PLANTS—A new line of stationary and semi-permanent batch-type bituminous mixing plants to meet the needs of producers whose work does

You Name It We'll Make It

Construction fasteners are our specialty. Besides maintaining large stocks of the more popular styles of fasteners used in construction work, we can make almost any kind of special fastener. Special heads, threads, lengths—you name it, we'll make it. Whether you need a dozen or a carload, we're geared for fast service.

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BETHLEHEM STEEL

going up faster...

How to cut forming costs

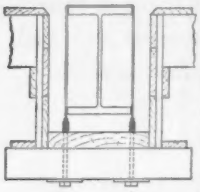
You can cut forming costs on walls, bridge piers, abutments, foundations, etc. with Sure-Grip coil ties. You use fewer coil ties because they have greater capacity. They can be assembled in panels on the ground prior to erection. Extra large panels can be used and you can pour faster. Working parts of ties are interchangeable and reusable. You save time, labor and material costs.

Coil ties are available in two strut and four strut types and in ½", ¾", 1" and 1¼" sizes. Capacities from 6,000 lbs. to 36,000 lbs. Standard or tight cones. Single coil ties also available.

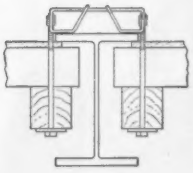
Continuous threaded rod in ½", ¾", 1" and 1¼" sizes available for use with coil ties. Makes an **adjustable** form tie and spreader. Cut the rod on the job. Ideal for jobs with many different form widths.

Coil Hangers and Facia Ties

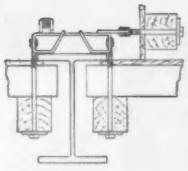
Fast, safe and economical forming methods for building slabs and fireproofing beams. Working parts are reusable.



Coil hangers are fabricated to exact specifications. Safe **working loads** per side: 3000 lbs., ½"; 7500 lbs., ¾" and 10,000 lbs., 1".



Coil hanger frames are ideal where beams are not fireproofed and where no hanger wire can be exposed after stripping. You can tighten forms against the steel and prevent concrete leakage. Available in slip fit style with nut for adjustment from the top. Also with 1 or 2 coils on 45° angle.



Same hanger frame as above, but with facia coil tie for carrying form work on spandrel beams. Screed chair base can be put on any coil hanger frame.

FREE — Mail the coupon below for 48 page illustrated catalog of concrete accessories and name of your nearest Sure-Grip dealer.

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Without obligation, send me your **free** 48 page catalog and the name of my nearest Sure-Grip dealer.

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not require frequent moving has been introduced by the Iowa Manufacturing Co. The new model H Iowa plants are similar to the popular Cedarapids portable units except that they do not include running gear or self-erecting equipment. This lowers initial costs for producers who do not require these portable accessories. The model H60A, largest in the line, pictured, has a capacity of 160 to 240 tph; the model H50A is rated at from 120 to 180 tph; the model H40A is rated at from 90 to 150 tph; the model H30 is rated at from 60 to 120 tph; the model H20 is rated at from 60 to 80 tph; and the model H15 is rated at from 30 to 70 tph. All H-series plants are made up of 10 basic units that include a mixer, drier, dust collector, and feeder units. Components can be combined into a number of different arrangements to meet specific job conditions. Weighing and mixing processes can be arranged for manual, semi-automatic, fully automatic, and automatic with remote controls. All model H plants are tower-type, stack-up plants. — **Iowa Manufacturing Co., Cedar Rapids, Iowa.**

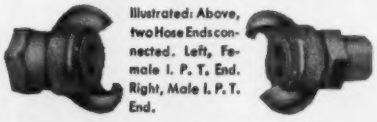
LIGHT LINE—A line of transistorized flasher warning lights, called Jumbo Esco Flares, has been introduced by Electronic Specialties Co. The lights feature a cartridge-type, hermetically-sealed, transistorized flasher unit

Quick Action...and Tight, Pressure-Proof Connections

"AIR KING"
Quick-Acting, Universal HOSE COUPLING

FOR COMPRESSORS, ALL TYPES OF AIR TOOLS, WATER, OIL AND SPRAY SERVICE

This versatile coupling is built along plain, rugged lines to assure long, trouble-free service under severest working conditions.



Illustrated: Above, two Hose Ends connected. Left, Female I. P. T. End. Right, Male I. P. T. End.

The "Air King" will reduce operating costs wherever quick connections are required. Locking heads are identical for all sizes of hose or threaded ends within the coupling's size range, and are locked by pressing together and applying a quarter-turn. Equipped with patented Safety Locking Device. Bronze or rustproofed malleable iron, in sizes up to 1".

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going up faster...
with an ALL INSLEY crane

To get top performance on "tilt-up" construction jobs, contractors need a mobile rig that is easily operated, maneuverable and built to take it, day after day. The Insley Type WB Crane with an Insley designed and manufactured lorry carrier is the right combination to meet the demands of today's construction problems.

Let your Insley distributor show you the advantages of the Insley Type WB, mounted on the Insley designed and manufactured 35-ton Lorry. There's an Insley working near you.

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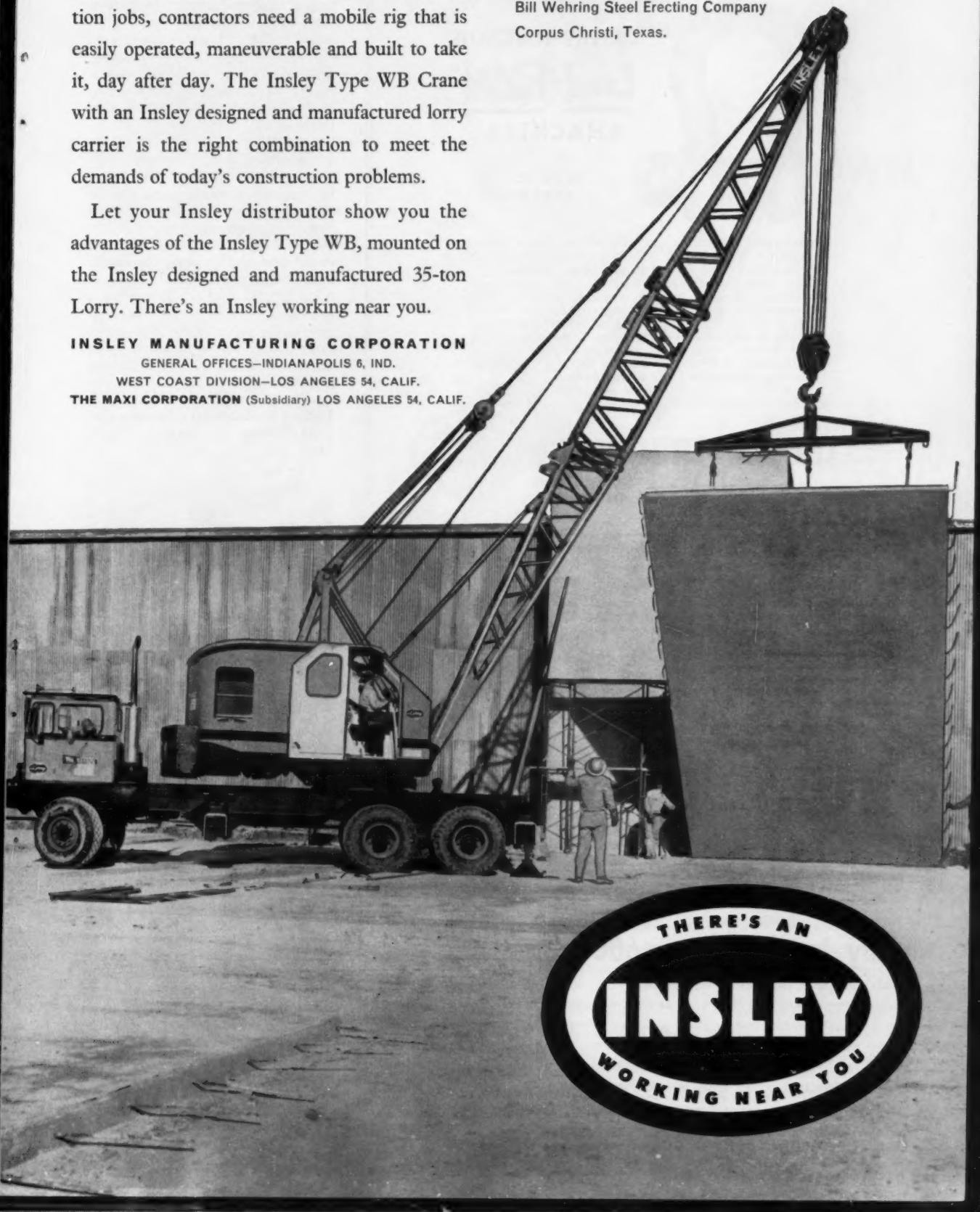
Insley Type WB Crane, owned by
Bill Wehring Steel Erecting Company
Corpus Christi, Texas.



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CROSBY-LAUGHLIN

Load-Rated* SHACKLES

⅓ TO 75-TON CAPACITIES

Guaranteed capacities are offered by new Crosby-Laughlin* "Load Rated" Shackles that have their safe working load drop forged in the body. Special steels, drop forged—heat treated, plus perfect pin alignment produce quality shackles actually 50% stronger than common shackles, *size for size!* Select from a broad line of round pin, screw and safety shackles in anchor and chain styles . . . be sure you get RED fittings—symbol of *genuine* Crosby-Laughlin "Load Rated" Fittings—it's the world's most complete line. *New catalog* now available from mill supply, construction or industrial equipment distributors. Or write:

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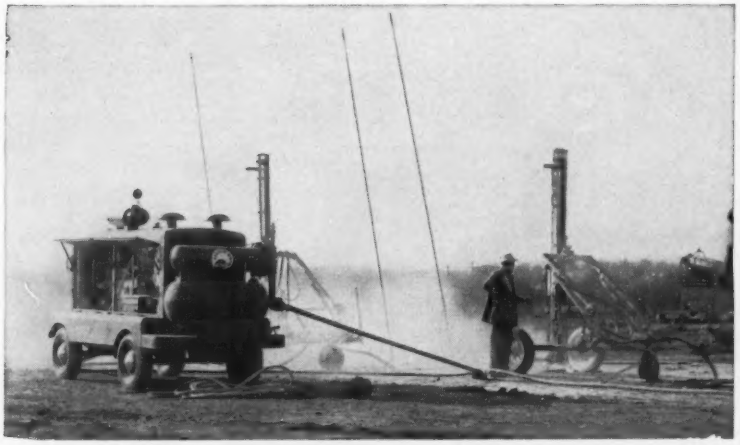


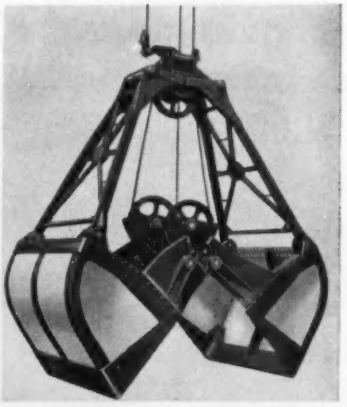
Only Jaeger delivers 600 cfm at 1650 rpm

Although powered with the same GM 6-71 diesel engine as the Jaeger "600", other compressors run 150 rpm faster to produce the same 600 cfm of air. In 8 hours' continuous operation a Jaeger averages 72,000 fewer revolutions, saves miles of engine piston travel and many pounds of fuel. Jaeger "125", "250" and "365" sizes are comparably efficient. See your Jaeger distributor for complete cost-saving data, or request Catalog JC-7.

THE JAEGER MACHINE CO., 800 Dublin Ave., Columbus 16, Ohio

that will operate under all weather conditions—and even under water. Other features include a high-capacity battery that provides up to 6 mo of power; die-cast heads that swivel 90 deg; built-in switch in head; and a choice of amber, red, or plain lens.—**Electronic Specialties Co., Batavia, Ill.**

VITAMINS ADDED — A hot-weather salt pill that also contains three strength-giving vitamins is now available. Called Pep-Up impregnated salt tablets, the pills replace salt lost through sweat and also provide the minimum adult requirements of vitamins B_1, B_2, and C. The combination is said to build up extra resistance to heat fatigue when taken daily. The tablets are available in 500 and 1000-pill plastic, throw-away containers that are sanitary and weatherproof. — **United States Safety Service Co., 1535 Walnut St., Kansas City 8, Mo.**



LIGHTWEIGHT BUCKETS—The use of aluminum in a new line of Owen clamshell buckets for handling free-flowing materials has reduced bucket weight and thereby increased payload capacities. The aluminum buckets are available in capacities ranging from 3 to 10 yd. The use of aluminum reduces weight by as much as 1,000 lb in the larger models. High-strength, abrasion-resistant alloy aluminum plate is used to form the side and bottom bowl plates of the buckets. Cutting edges, corners and other points that are exposed to rough treatment are made of steel.—**Owen Bucket Co., 6,001 Breakwater Ave. Cleveland 2, Ohio.**

HEAVY DUTY CARRIER — A materials carrier in the 40,000-lb-capacity class has been introduced by the Gerlinger Carrier Co. Called the 40-S, the carrier features a newly designed hydraulic lifting shoe that swings in or out at any lifting position. A 192-hp Ford industrial V-8 engine enables the carrier to operate over the highway or on rough terrain. The carrier has a spring assembly that is designed to cut frame strain and operator fatigue. The carrier has a turning radius of 13½ ft. Standard tires are 12:00-20.—**Gerlinger Carrier Co., Dallas, Ore.**

PUMPS 200 GPM—Thor's new 51-T sump pump, designed especially for low-head pumping applications, weighs only 35¾ lb but will drain up to 200 gpm from tanks, excavations, ditches, and other shallow locations. The pump is powered by a four-blade rotary air motor that runs with less than 50 cfm of compressed air under a full load. The pump's non-

THE TROWEL THAT GOT AWAY

THIS COULDN'T HAPPEN...

with a STOW ROTO-TROWEL

The exclusive manual clutch control is one of the big reasons why more contractors specify Stow Roto-Trowels. Merely by letting go of Stow's Dead-Man Clutch Control the operator stops the blades WITHOUT stopping the engine. Recent tests prove that the blades come to a complete stop *one-sixth of a second* after the operator releases the handle.

With this important safety feature the operator can keep the engine of the Roto-Trowel running while he lets go of the machine to pick up a pebble from the concrete or light a cigarette.

The Stow Roto-Trowel is easier to start too. With the exclusive Stow clutch, the throttle may be set in any position for starting. This has eliminated starting difficulties caused by the non-adjustable centrifugal clutch.

Stow Roto-Trowels also feature blade pitch control on the handle, adjustable handle for height, chrome-vanadium steel blades and lifting hook on the engine. Available in 24", 29", 34", 42" and 46" trowel diameters, with a range of eight models to choose from, Stow Roto-Trowels are built for safety and long life, built to produce excellent concrete finishes.

Look up your distributor in the yellow pages of your phone book under "Concrete Vibrators" or

A Complete Line of Concrete Construction Equipment.

Vibrating Screeds

Grinders

Roto-Trowels

Vibrators

STOW Manufacturing Co.
31 Shear Street
Binghamton, New York

MAIL THIS COUPON *TODAY!*

Stow Manufacturing Co. 31 Shear Street
Binghamton, New York

I'm interested in the Stow Line of Concrete Construction Equipment. Send a complete catalog and name of nearest distributor.

I am particularly interested in_____

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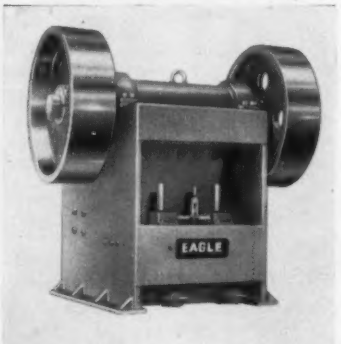
Company_____

Street_____

City_____ State_____

clog design enables it to handle clean or dirty water, sludge, and other liquids.—**Thor Power Tool Co., Prudential Plaza, Chicago 1, Ill.**

BIG ROTARY—A new portable rotary drilling rig, described by the manufacturer as the most versatile in its line, has been developed by the George E. Failing Co. The new rig is recommended for drilling large blast holes, taking cores, or soil sampling. The unit, which is mounted on a Crane Carrier truck, includes a Detroit Diesel 4-71 diesel engine to power the carrier, and a Le Roi model 100-S2 compressor powered by a GMC 6031-C diesel. The rig can handle either conventional rock or drag bits and also the newer down-the-hole drills. Three hydraulic leveling jacks are standard equipment.—**George E. Failing Co., Enid, Okla.**



BIG CRUSHER—Eagle's new jaw crusher, which has a 30x42-in. feed opening, is rated at from 125 to 400 tph. The new unit, largest in the Eagle line, takes a 125 to 150-hp motor to attain and hold its normal 200-rpm operating

CARCO WINCHES LICK 65° GRADE ON "WILDERNESS ROAD" PIPELINE

Key equipment in building a 36-mile natural gas pipeline from Osborn Gap, Virginia, to Maytown, Kentucky, were 9 Carco-winch-equipped Allis-Chalmers tractors.

Called Wilderness Road, the line was a tough assignment, as solid rock and grades up to 65 degrees were encountered in crossing the mountains of Virginia and eastern Kentucky.

On this job, as on most pipeline projects, Carco winches were found invaluable in helping complete the work on schedule. Some of the important tasks for which the contractor, H. B. Ranier Construction Company of Prestonburg, Kentucky, depended upon Carco winches were towing costly, heavy equipment such as loaded pipe trucks, ditchers, backhoes and welders up steep grades and holding them on down slopes.

All 9 Carco winches were either Model FO or Model GO. Both are specifically designed for pipeline and oilfield work. Both offer contractors two forward speeds and reverse, automatic brakes, constant mesh gear trains and other features, many exclusive with Carco.

Carco makes more winches for more makes and models of industrial tractors than any other producer. That's conclusive evidence that Carco winches are designed to perform efficiently and built to withstand the rugged service to which they are subjected. For your next winch, be sure to see your nearest Carco dealer. PACIFIC CAR AND FOUNDRY COMPANY, Renton, Washington. Branch at Chicago, Illinois.

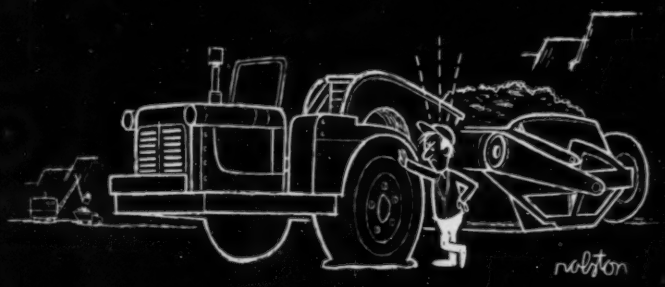
SPECIFICATIONS
CARCO FO Winch
Cable Drum Sizes:
Barrel diameter ..... 8"
Flange diameter..... 19"
Barrel length..... 15"
Drum Capacity (calculated):
⅜" wire rope..... 746'
½" wire rope..... 518'
⅝" wire rope..... 390'
1" wire rope..... 292'
Line Pull, Bare Drum:
To 50,000 lbs. depending on tractor horsepower.
Shipping weight—1,590 lbs.

SPECIFICATIONS
CARCO GO Winch
Cable Drum Sizes:
Barrel diameter ..... 8"
Flange diameter ..... 22"
Barrel length ..... 13"
Drum Capacity (calculated):
¾" wire rope..... 658'
⅞" wire rope..... 482'
1" wire rope..... 371'
1⅛" wire rope..... 293'
Line Pull, Bare Drum:
To 60,000 lbs. depending on tractor horsepower.
Shipping weight—2,425 lbs.

Carco is a pioneer maker of tractor winches. From the first, Carco winches have been built to give such lasting efficiency they have earned an international reputation for dependability.

CARCO®

NICK GOT STALLED



an ordinary tire "blew" the job

but DICK GOT IT HAULED with

U. S. ROYAL SAFETY 1st OFF-ROAD TIRES

contractor-proved against job delays!

At hundreds of big projects, contractors have *proved* that using U. S. Royals prevents costly tire delays, keeps jobs on schedule!

Why? Because today's U. S. Royal Tires have exclusive, advanced features that deliver extra traction, greater strength, longer wear. And because they're backed up by expert on-the-spot *service* and complete, convenient *retread facilities.*

Ask your U. S. Royal Dealer to demonstrate how these contractor-proved tires can help cut delays for *you.* And be smart—specify "U. S. Royal" on your next new equipment!

TRIPLE IMPACT PROTECTION ... FULL-LUG TRACTION!

Expressly designed for off-road work demanding the utmost in tire stamina, traction and flotation.

New Wide Base
U. S. ROYAL CON-TRAK-TOR
in Royal-Processed NYLON Construction

US RUBBER

United States Rubber

Rockefeller Center, New York 20, N.Y.

In Canada: Dominion Rubber Co., Ltd.

GREATER VIBRATION
LESS MAINTENANCE

Corbetta Construction Co. Selects Vibro-Plus to Consolidate Mix on New Maintenance Base at N. Y. International Airport

Concrete for this 11 millon dollar job was consolidated by Vibro-Plus Rollgear vibrators. Our patented Rollgear principle permits us to produce 12,000 v.p.m. at a shaft speed of only 3600 r.p.m. . . . Competitive equipment must run at shaft speeds up to 12,000 r.p.m.

As an equipment man you well know that the higher the speed, the more frequent the breakdowns. . . . What does this mean to you? . . . It means our core and cable breakage is reduced by as much as 90% — reducing downtime on your job and thereby cutting maintenance costs to the bone. . . . You'll be 'way ahead by looking into the Rollgear line first. . . . See your local Vibro-Plus distributor for all the facts and complete literature.

Ad 41-56

VIBRO-PLUS PRODUCTS, Inc.

STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES!

TWIN FACTS

a report on the cost-cutting performance of Euclid "Twins"

Contractor completes road grading job with one Euclid "Twin"

After years of specializing in pipeline work, R. L. Eatherly Construction Co. of Nashville, Tennessee, decided to bid on a road grading job—got the contract to grade 3.2 miles of secondary road connecting U. S. 70 with Oak Ridge, Tenn. Since the company didn't have any rubber-tired earthmovers, a thorough study of all scraper makes and models was made.

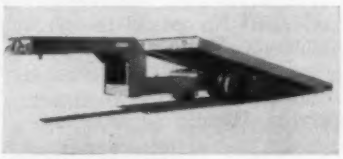
Based on comparisons of productive capacity, operating costs and return on investment, a Euclid TS-24 Twin-Power Scraper was bought for the job. Although the 50,000 yd. project wasn't a big one, it was pretty tough scraper work because it involved shale, clay and rock, with many shallow cuts and fills. Eatherly counted on the self-loading ability and the easy maneuverability of the "Twin" for this job. Here's the result: the one-man earthmoving spread completed all of the dirtmoving in four weeks—finish grading as well as driveway work for property owners along the three and a quarter miles of right of way!

Operator Tommy Swann summed up the "Twin's" performance this way: "I've operated them all and there's nothing like this 'Euc'." If you don't have current information on the TS-24, be sure to get in touch with your Euclid dealer for some interesting facts and figures.

EUCLID DIVISION, General Motors Corp., Cleveland 17, Ohio

speed. Features of the unit include a 58-in. flywheel, reversible manganese steel jaws, and the use of special alloy steel in the eccentric shaft. Crusher jaws can be adjusted while the unit is operating from a minimum of ½ in. to a maximum of 8 in.—**Eagle Crusher Co., Inc., 900 Harding Way E., Galion, Ohio.**

BOTH HANDS FREE—The new Wyco Junior vibrator comes with a padded carrying strap that enables the operator to maneuver the head with both hands while carrying the motor at his side. The ¾-hp Universal 110-v motor is totally enclosed and protected with a guard against damage. The new vibrator, which is light enough to be used in low slump concrete, takes a 1⅜ or 1⅝-in. head with either a steel or rubber tip.—**Wyzenbeck & Staff, Inc., 223 N. California Ave., Chicago 12, Ill.**



TILTING TRAILER—A new 30,000-lb-capacity tandem-axle tilting tralier has been added to the Miller line. Designed to be towed by fifth-wheel tractors, the trailer features a gooseneck tongue that acts as a second frame underneath the tilting platform. This construction puts the pivot point further back, which lowers overall platform height when horizontal and allows a tilt angle that is low enough to eliminate

MOVING DAY For 2/5 of an Acre of FRAGILE Glass...

IN VERMILLION, OHIO, a greenhouse grower named Paul Ruetenik has hit upon a smart idea that could revolutionize the greenhouse vegetable industry. Every season he picks up his greenhouse and moves it over to a new plot of ground. This enables him to grow his crops, like tomatoes, on fresh soil every other year!

The only problem is how do you pick up a 90' by 200' greenhouse of brittle glass and move it? These greenhouses are heavy, too. They have all their heating lines and equipment intact. One slip, or a little too much strain somewhere, and you'll end up with $40,000 worth of glass slivers.

Mr. Ruetenik now has the moving job down to a science. He jacks the greenhouse up, removes the end panels so they can clear the crop, and slides his greenhouse along on pipe rollers.

For power he uses four Beebe Winches bolted to railroad ties which are buried upright in the ground. Beebe Winches are the ideal power source for this kind of job. No other machine has the pulling power combined with the delicate control and sensitive feel of a Beebe Winch.

The next time you have a job that needs sensitive power—please remember Beebe Winches.

strongest geared power for its weight in the world

Beebe Bros.

2730 Sixth Avenue, South Seattle, Washington

THE NEW BARCO VIBRA-TAMP*

* Companion Tool to the Barco Rammer, Famous for Deep, Penetrating Soil Compaction!

A Versatile Tool for MAXIMUM COMPACTION of

1. Granular Base Materials

2. Bituminous Surfacing

EFFICIENT—one man does the work of many with VIBRA-TAMP. Operates in any weather. Works flush against curbs, foundations, and walls.

ECONOMICAL—to buy, operate, and maintain! No special tools required. Saves your bigger, costlier equipment. Tamp up to 750 sq. yds. per hour.

SAFE—moving parts fully enclosed. Special vibration dampers reduce operator fatigue. Simple controls. Handle adjustable to comfortable height.

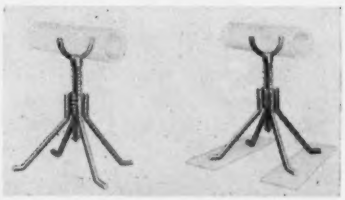
DURABLE—simple design and quality construction keep VIBRA-TAMP on the job day in and day out. Carburetor unaffected by vibration.

VERSATILE—use VIBRA-TAMP for all kinds of work—wherever low cost is a prime consideration. Take VIBRA-TAMP on the big jobs for hard-to-reach areas. Use it for patching streets, driveways, and roads. VIBRA-TAMP has no economy equal—a real work-horse on sand, gravel, soil, chippings! *Ask for new catalog No. 630.*

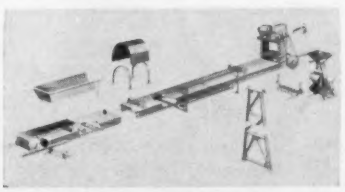
Worldwide Sales and Service

BARCO *Serving Industry Since 1908*
MANUFACTURING COMPANY, 512-6 Hough St., Barrington, Ill.

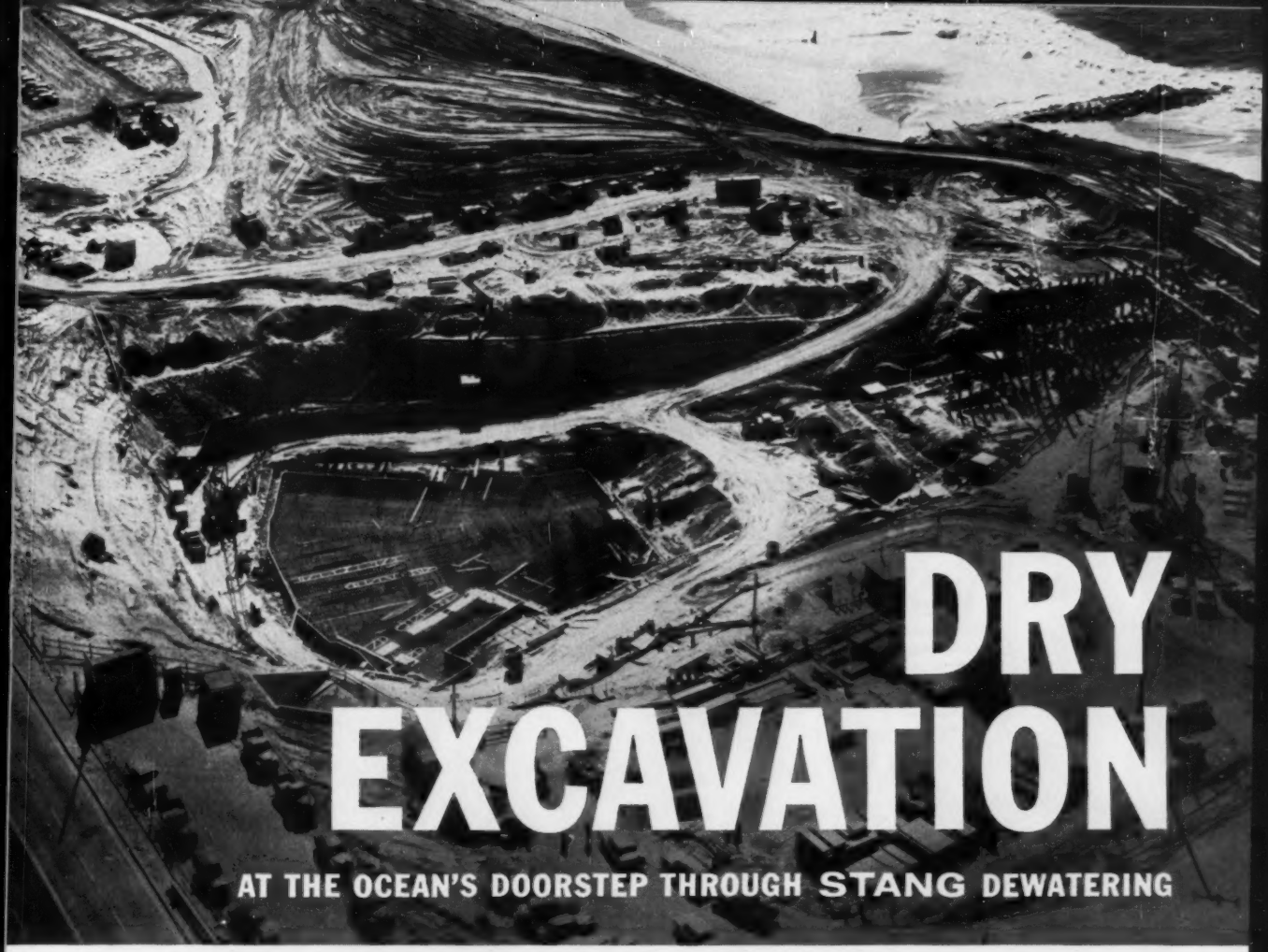
the need for a beaver tail or platform hump. This design also allows the use of an over-the-wheels platform wide enough to haul big equipment. To reduce jarring when riding over rough terrain, Miller has combined tandem suspension with freely oscillating walking beams. This permits each set of dual wheels to rise and fall independently. Solid 2-in. oak decking forms the platforms for both the 8x16 and 8x20-ft units. Optional equipment includes a choice of air or vacuum brake controls that hook into the tow unit braking system.—**Miller Tilt-Top Trailer Co., South 92nd St., Milwaukee 14, Wisc.**



FULL LINE—The Dayton Sure-Grip and Shore Co. now offers a complete line of reusable screed chairs for use on any thickness of concrete slab. Adjustable screed supports are available in four sizes, ranging from 1½ to 5 in. high. They can be used for slabs from 2¾ to 11¼ in. thick. The 1-in. pipe, used for every slab thickness, is supported by a ½-in. lag bolt that screws into the coil of the chair. Adjustments can be made in two ways—either by turning the holder in the coil before the screed bar is put in place, or by turning the chair after the bar is in place. The Sure-Grip line also includes adjustable screed supports for slabs on fill (right in photo) and non-adjustable screed chairs for use with 1-in. pipe.—**Dayton Sure-Grip and Shore Co., 303 Kercher St., Miamisburg, Ohio.**



BIG FEEDER — Barber-Greene's new model F-8 belt feeder, which has a capacity range of from 5 to 550 tph, is designed for any ap-



DRY EXCAVATION

AT THE OCEAN'S DOORSTEP THROUGH STANG DEWATERING

H. C. Smith, contractor, says:

"STANG's expert engineering, instantaneous service and know-how KEPT OUR JOB DRY."

"We've used Stang on many jobs, and the thing that always impresses us most is the speed of service. Saturdays, weekends, day or night, when we call them, they're here. Besides the service, we depend on their engineering. Because they're experts in handling water, they invariably save us time and money.

On this particular job, we encountered several unusual and difficult water handling problems but, thanks to Stang's engineering and know-how, we kept out of any real trouble. In our book, Stang is tops."

For the most practical and economical answer to your water handling problems, call on water handling specialists . . . call STANG!

PICTURED ABOVE: The Scattergood Steam Plant, in Southern California, on the edge of the Pacific Ocean. The excavation, made in beach sand, measured approximately 300′ x 100′ at sub-grade, with a maximum cut in the deep section of 32′ below the water table.

Putting water in its place

STANG

...anyplace!

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Engineers and Manufacturers of Dewatering Equipment, Wellpoint and Pumping Systems
Dewatering Planning—Equipment—Service

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Please send me your free 100 page Brochure, "The Stang Wellpoint System."

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"It takes a lot of truck to handle 25- to 30-ton loads!"

—says W. B. Couch, superintendent of the Campbell Limestone Co., Beverly, S. C., in reporting on their GMC Diesels

OFF-THE-ROAD HAULING THAT'S TOO HEAVY FOR LEGAL HIGHWAY TRAVEL is rugged business. Yet Campbell Limestone's GMC Diesels do this day after day—running 10-hour days in the summer. They've never required any pampering—even after the equivalent of 100,000 miles of this work. It's the pay-off on GMC's *all-truck* construction—as the world's largest exclusive commercial vehicle manufacturer can supply it.

SOME OF THE HUGE BOULDERS THAT HURTLE DOWN into Campbell's GMC's are half the size of a sedan. In fact, the specially built dump bodies are of 1-inch steel plate. And underneath is the GMC brand of super-stamina that shrugs off this kind of punishment—for years.

EVEN CLIMBING THE STEEP RAMPS with their huge loads is easy for these GMC's. They've got the power reserve to keep rolling where other trucks can't make the grade. You can thank those high-torque 2-cycle Diesels for that!

GMC TRUCK & COACH—*A General Motors Division*

GMC-America's Ablest Trucks *½ to 45 tons*

Cites White's ability to "rough it"

Bert Heuvelman, President, Instrument Sales, 3947 W. Lawrence, Chicago —Shown adjusting a David White T8200 Contractors' Transit.

"The real value of a surveying instrument lies in its ability to 'rough it,'" says Bert Heuvelman, President, Instrument Sales.

"It must be able to absorb extremes in temperature and weather and continue to serve dependably and accurately.

"It has been my experience that David White instruments are made with standards of precision and ruggedness that far surpass those needed to meet job requirements. The customary annual maintenance keeps them good as new."

The David White Instrument Company has been making highest quality surveying and optical instruments for over 50 years. You can be sure "the sight is right with a David White."

Write today for your free David White surveying instrument catalog. Or see the complete line of David White instruments at your blueprinter, or lumber, building supply or hardware dealer.

DAVID WHITE

INSTRUMENT COMPANY

Dept. B, 2051 N. 19th St., Milwaukee 5, Wis.

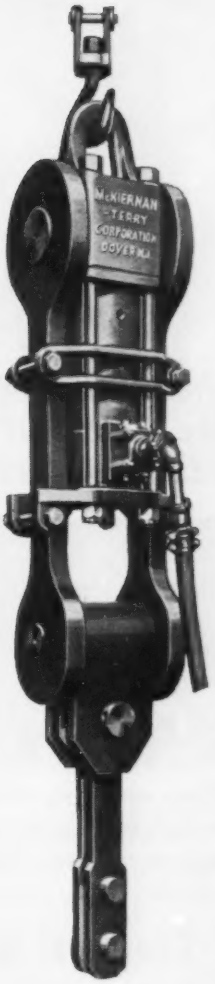
plication where a high degree of accuracy is necessary. A pre-engineered, packaged unit, the feeder is shipped assembled and ready for use in a reclaiming tunnel, beneath elevated bins, or in steel or wooden bulkheads. Two drive arrangements are available. A gear motor and a roller chain drive provide constant belt speed with capacity controlled by a quadrant-type control gate equipped with a fine screw adjustment. An optional drive system provides variable belt speeds through a variable speed reducer and roller chain arrangement working in conjunction with a quadrant gate having control settings in 1-in. increments. This provides adjustments by varying the gate opening, by alterating the belt speed, or by both means. Manual controls can be mounted on the reducer or remote controls can be installed any place in the plant. Low overhead requirements allow the unit to be mounted beneath low bins or in reclaiming tunnels. Idlers are closely spaced to prevent spillage. **—Barber-Greene Co., 400 N. Highland Ave., Aurora, Ill.**

BEAM TONGS—Non-automatic, inexpensive lifting tongs for handling beams weighing up to 6,000 lb have been introduced by the Heppenstall Co. Simply but efficiently designed, the tongs are intended for use where the amount of lifting required does not justify the purchase of automatic lifting devices. Available in 3,000 and 6,000-lb capacities, the tongs have rounded ends that enable the jaws to slide over the beam flange. When the tongs are lifted the jaws close on the beam and support it firmly from both sides of the flange. The 3,000-lb tongs open from 5½ to 10 in.; the 6,000-lb tongs have a maximum opening of 13¾ in. and a minimum opening of 8½-in. — **Heppenstall Co. Materials Handling Div. New Brighton Penn.**

ABG VIBRATORY ROLLER—In a story in the April issue, which described recent advancements in bituminous paving equipment (p. 113), CM&E listed the working width of the ABG self-propelled vibratory roller as being 33½ in. This is the roll diameter. The correct working width is 39½ in.

McKIERNAN-TERRY CORP.
110 RICHARDS AVE., DOVER, N.J.

McK T



PILE EXTRACTORS

Models E2 and E4, rated for 50- and 100-ton crane pull respectively, provide rapid, low cost extraction of heavy piles from the toughest embedment. Powered by steam or air. Write for Bulletin 58.

Keep water IN— Keep maintenance DOWN!

Don't take chances with that costly swimming pool.

If it is made of concrete, it is porous—if it is porous, thousands of gallons of water will enter and finally deteriorate the masonry—causing it to crack.

Make the FIRST COST the LAST COST!

Ask your contractor to make sure it is watertight by using THOROSEAL to seal the surface. THOROSEAL is available in many attractive colors.

Thoroseal is not just a coating for masonry, it is a filling sealer that becomes a part of the masonry and protects it from deterioration.

"How to do it" GET OUR 16 PAGE BROCHURE

STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNA. CENTERVILLE, IND.

New Publications

These catalogs and bulletins from manufacturers contain useful information about construction equipment and materials. To obtain a copy, write directly to the manufacturer at the address given.

Conveyor Terms—The Conveyor Equipment Manufacturers Association has published a revised edition of their "Conveyor Terms and Definitions, Book No. 101." The 96-p book defines more than 1,200 conveyor types, parts, and related equipment. Price $2—**Conveyor Equipment Manufacturers Association, One Thomas Circle, Washington 5, D. C.**

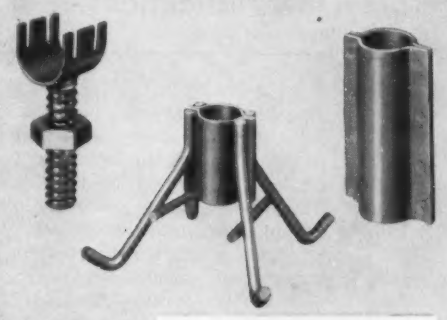
Wire Rope—A new 36-p handbook for users of wire rope describes how to select the right rope, methods of socketing, splicing and installation, and important points on safety.—**Wire Rope Corporation of America, St. Joseph, Mo.**

Soil Testing—A 128-p indexed catalog describes equipment used for preliminary field investigations; drilling and sampling; laboratory soils equipment including triaxial, consolidation, liquid limit tests, etc.; ovens, hot plates, glassware; concrete testing equipment (including five pages devoted to the latest compression equipment); asphalt and bituminous testing apparatus. Copies may be obtained from the Testlab Corp. New York or Chicago office or from any of the local Testlab representatives.

Lumber Bibliography — The Western Pine Association has issued a list of over 100 of its publications including teaching aids, folders, booklets, grade use guides, species books, and technical aids. The list is called "Publications You Can Use."—**Western Pine Association, 510 Yeon Bldg., Portland 4, Ore.**

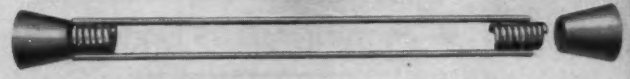
Lightning—"Lightning Fact and Figures" describes the hazardous antics of lightning and means of protecting life and property against this destructive force. Personal safety rules and suggestions for buying protection systems are included. — **Lightning Protection Institute, 53 W. Jackson Blvd., Chicago 4, Ill.**

continued on page 184

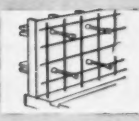


HEAVY-DUTY SCREED SUPPORTS

Overpasses and Underpasses

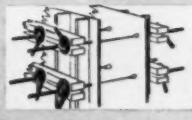


THREADED COIL TIES

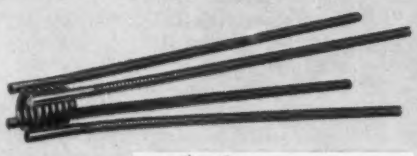


Engineering Structures

TILT LOCK CLAMPS



Heavy-Duty Forming



4-STRUT COIL ROD ANCHORS

Temporary or Permanent Anchorage

SUPERIOR

One Source For All Accessories For Dependable Concrete Forming

These are examples of the numerous types of form ties, anchors, inserts, and other items in Superior's most complete line of concrete accessories. The illustrations show the variety of concrete form work and related jobs in which Superior accessories are used. All items are designed to provide the most dependable and efficient forming methods.

WHENEVER YOU ARE PLANNING FORM WORK... Superior's technical assistance is available to prepare suggested layouts. Call or write to nearest address shown below.

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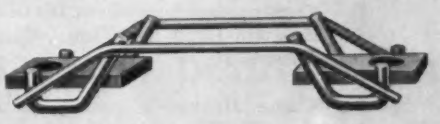
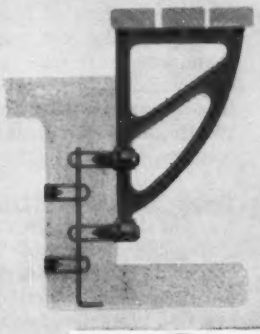


PLATE HANGER FRAMES

Bridge Superstructures



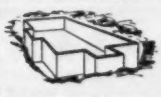
RISER-FRAMES

Stadiums and Grandstands

PICK-UP INSERTS

Tilt-Up Work

SNAP TIES



Ordinary Foundations

Good Cleaning NEEDS *Hardened*

SCALEMASTER

WELD CLEANING HAMMERS

Light and Tough SCALEMASTER *Tools Produce!*

DROP-FORGED, modern "unitized" design for surer aim in chipping and cleaning . . . and lasting durability.

EXCLUSIVE angle-mounted Brush prevents bruising and cutting knuckles. Securely-held Brush easily reversible or replaceable.

HARDENED working edges and points (to Rockwell 52-60 C per Fed. Spec. GGG-H-35a).

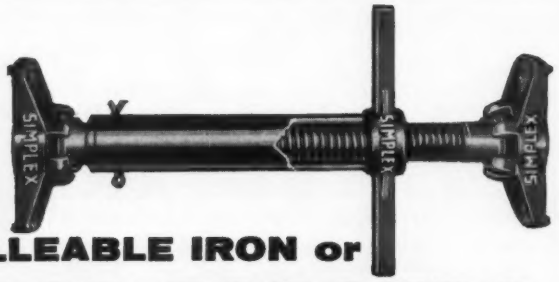
Slender, graceful, properly balanced for the right FEEL!

Ask for Bulletin No. 27

THE FIBRE-METAL PRODUCTS COMPANY

CHESTER, PENNSYLVANIA

In CANADA: *Fibre-Metal (Canada) Limited, Toronto*



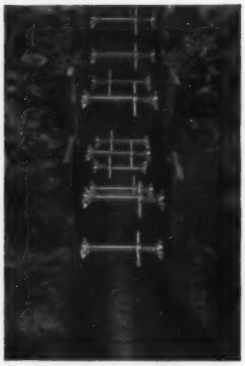
MALLEABLE IRON or

DROP FORGED?

Rugged dependability suggests that you insist on the best — Simplex *drop forged steel* trench braces.

Ball and socket joints at each end for tight grip at any angle. Blunt lever nuts or 3-way nuts — nail holes in both screw and butt ends. Furnished with or without pipe.

Simplex drop forged steel trench and timber braces *cost no more* and better eliminate the danger of cave-ins and costly re-digging.



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NEW PUBLICATIONS . . .
continued

Powder-lancing—An 8-p booklet, form 1164, describes typical powder-lancing applications. The process, developed by the Linde Co., uses metallic powder burning in oxygen to cut almost any material. It often saves time and money on specialized concrete demolition work.—**Linde Co., Room 2840, 420 Lexington Ave., New York 17, N. Y.**

Cutting Edges—A new 8-p booklet, form DE804, entitled "Hi-Electro Hardened Cutting Edges" describes the testing and manufacture of these parts.—**Advertising Division, Caterpillar Tractor Co., Peoria, Ill.**

Truck Crane—Five pieces of literature are available on the Austin-Western hydraulic crane. Form AD-2407 covers working ranges and capacities. Form AD-2422 covers basic specifications and attachments. These two replace catalog AD-2253 which now is obsolete. In addition three new Gould job reports on the machine are available.—**Austin-Western, Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Aurora, Ill.**

Crane Hooks—A new bulletin, No. CB-257, describes the complete line of Max-Lift crane hook blocks including the newest development in the line, a 35-ton block.—**The Upson-Walton Co., 12535 Elmwood Ave., Cleveland 11, Ohio.**

Drill Bits—A 6-p bulletin, RD29, describes a line of one-use drill bits, including bit construction, preparation of drill rod shanks, and specifications.—**Sales Promotion Department, Le Roi Division, Westinghouse Air Brake Co., Milwaukee, Wis.**

Truck Mixer—A 12-p bulletin, No. TM 4-58 describes and illustrates the new 1958 Transcrete truck mixer. —**Advertising Department, Construction Machinery Co., Waterloo, Iowa.**

Allis-Chalmers Equipment — A new series of catalogs describes major A-C equipment. Catalog MS-1251 covers the HD-6 crawler tractor. Catalog MS-1289 covers the HD-16 tractor. An 8-p cat-

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NEW PUBLICATIONS... continued

alog MS-1234 describes the HD-6G tractor shovel and its interchangeable attachments. Catalog MS-1269 covers the TW-360 bottom-dump motor wagon. Catalog MS-1270 describes equipment and accessories that increase versatility of A-C scrapers and motor wagons. A 16-p catalog BU-413 covers two new diesel engines, the D-344 and the D-516. Catalog BU-451 covers fork lift trucks.—**Allis-Chalmers Mfg. Co., Milwaukee, Wis.**

Shovel-Crane—A new 24-p catalog No. 2553 describes the full 1-yd LS-98 shovel, crane, dragline, and hoe.—**Link-Belt Speeder Corp., Cedar Rapids, Iowa.**

Compactors—Two Galion leaflets tell how to combine a Jackson electric vibratory compactor with a roller or grader. Bulletin 423 covers the combination of a Galion 3-wheel roller with a compactor. Bulletin 424 describes the compactor on a Galion 503 grader.—**The Galion Iron Works & Mfg. Co., Galion, Ohio.**

Scaffolding — A 12-p bulletin PTS-18R contains a complete description, installation instructions, engineering data and a broad range of uses for "TubeLox" scaffolding.—**The Patent Scaffolding Co., 38-21 12th Street, Long Island City 1, New York.**

Blaw-Knox Equipment—The following three bulletins have been issued by the company's Construction Equipment Division: Bulletin No. 2622 gives a description and specification for the 5, 6, and 7-yd Hi-Boy truck mixers; Bulletin No. 2631 covers the model 200-222 Uni-Rect truck mixer concrete loading plant; Bulletin No. 2632 describes the Express Paver, a new bituminous paver finisher. — **Sales Promotion Department, Construction Equipment Division, Blaw-Knox Co., Mattoon, Ill.**

Vibrating Screens—A 14-p catalog gives complete data and specifications on Syntron pulsating-magnet screens, concentric-action screens, unbalanced-pulley screens, grizzly bar screens, and screening feeders.—**Syntron Co., 500 Lexington Ave., Homer City, Pa.**

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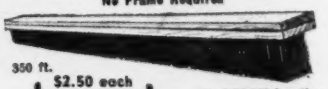

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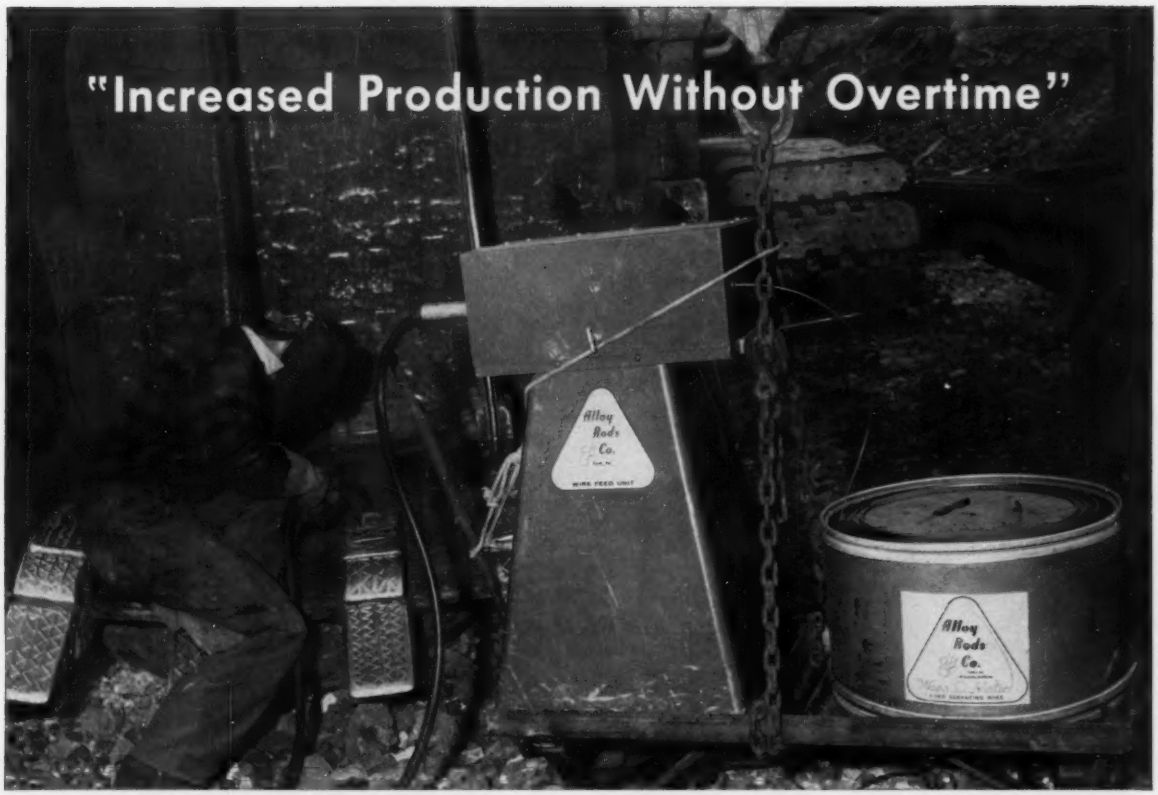

Hard Surfacing Semi-Automatically with WEAR-O-MATIC Yields Big Production Dividends for Custom Shop

The 5½ yard bucket shown above is being built up with Wear-O-Matic Nickel Manganese. This is a vertical weld on one of the grizzlies in the bucket. Over this will be deposited one pass of Wear-O-Matic 15. Perry Westlake has cut in half the time required on a job like this by using the Wear-O-Matic process.

Perry Westlake, Owner, Westlake Service, Burgettstown, Pennsylvania, does his best work while other men sleep. His custom hard surfacing of equipment must be done between shut down time at night and start up time next morning. This rigorous schedule has been the downfall of many contract weldors. Westlake solved this problem with the new Wear-O-Matic Semi-Automatic Hard Surfacing Process. "It would take an additional gasoline driven DC welding machine and another trained hard surfacing weldor to turn out the production we now get using the Wear-O-Matic process," says Perry.

Easier, continuous welding at faster speeds; quicker set up time per job; simpler wire change over and longer wearing alloy deposits have increased the efficiency of Westlake's entire operation.

A complete range of build-up and hard surfacing alloys packed in convenient 100 pound Payoffpaks provides longer wearing deposits for all hard surfacing requirements. The low initial cost of the Wear-O-Matic process makes the change over to semi-automatic hard surfacing feasible for every maintenance shop.

Your weldors will like the ease and convenience of the Wear-O-Matic process and you'll like the increased production. Write for Bulletin HS-122, Alloy Rods Company, P. O. Box 1828, York, Penna.

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"VERY EASY TO OPERATE . . . it handles grade well . . . is very well balanced," reports Joseph A. Bekes about the American he operates for Monagin. Modern design and expert manufacture give Americans the ability to work faster, more efficiently month after month in the most rugged conditions.

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The digging's tough here, but Dean Monagin, Inc., still completes three larger than average basements every day including moves between jobs. Monagin, Oak Park, Michigan excavating contractor, has an American 300 Series Backhoe working on a residential housing project in Livonia, Michigan. He's completed 700 basements in the area so far.

"A good producer . . . dependable . . . fits our needs very well," says Monagin about his American Hoe. He also uses it on sewer and water line jobs and tank excavations . . . uses the hoe to set tanks too! Monagin reports that his hard-working American has performed, "with no serious faults . . . is a good all around rig!"

You'll get the same story of satisfaction from every American owner and operator. On every kind of job from excavation to steel erection, these versatile work-proved machines continue to set new records in production—low all 'round cost! Equipment dollars are more important than ever—when you buy . . . while you work—so buy wisely. See your American Distributor for facts on a complete line!

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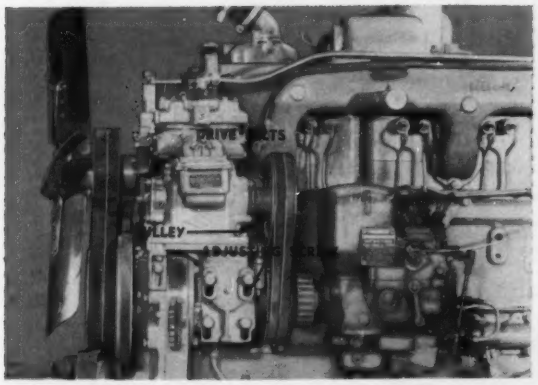
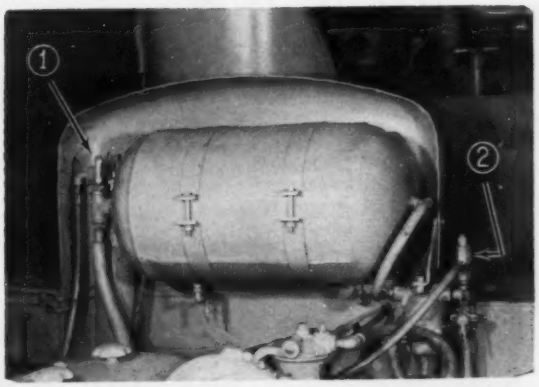


ADJUST BELTS—Unless drive belts are tensioned properly, pulleys, as well as belts, wear rapidly. Never replace just one belt.



HOLDS AIR—If tank fails to hold pressure, governor (2) is probably at fault. Safety valve (1) protects against overloading.

Check Brake Compressors Daily

COMPRESSORS that supply air brakes on earthmoving equipment require relatively little attention, but in all too many cases they are ignored completely—until it is too late.

If a compressor fails, air brakes fail, warns the LeTourneau-Westinghouse Co., and it might be too late to check the compressor AFTER brakes fail to hold.

It takes only minutes a day to check the air system, and this inspection should be a ritual at the start of each shift.

The first thing to check is the air strainer. A dirt-clogged strainer hampers the intake flow of air so that a compressor operates at far below its peak performance. Strainers must be disassembled and cleaned periodically. LeTourneau-Westinghouse recommends that the oil cup should be emptied, cleaned, and filled to the proper level with clean engine oil every 50 hr when the machine is working under normal conditions. On extremely dusty jobs, it is best to change oil more frequently to be certain that air drawn into the compressor is kept as clean as possible.

Next, check the compressor drive belt—or belts—for correct tension. A loose or slipping belt not only wears itself out quickly, but it also puts an added strain on pulleys. Never replace only one belt on compressors that have twin drive belts. It is almost impossible to obtain an accurate tension adjustment when a new and a used belt are combined. For the correct tension, consult the service manual.

Air brakes cannot function properly if the reservoir tank will not maintain the correct air pressure. Here again, the manufacturer's recommendations for the minimum and maximum air pressure settings must be followed closely. Even for the same prime mover, these recommendations may vary according to the type of equipment the tractor is hauling.

A gage on the instrument panel shows the amount of air pressure built up in the reservoir tank. If the air system fails to maintain the correct pressure, chances are that the governor is not set correctly.

The governor, working in conjunction with the compressor unloading mechanism, starts or stops air compression when pressure in the reservoir tank reaches the prescribed minimum or maximum requirements. To determine whether the governor setting is correct, LeTourneau - Westinghouse recommends that the governor - to - compressor line be disconnected at the compressor unloader. Then run the engine until the recommended maximum air pressure is reached.

At this point the valve should open and exhaust air through the port in the side of the governor body. If air is exhausted too early, turn the governor adjusting screw (usually located at the top of the governor) in a clockwise direction until the proper setting is obtained.

If the recommended maximum pressure setting passes before air is exhausted, turn the screw in a counter - clock - wise direction. (Most air systems are equipped with safety valves that open to permit air to escape if for some reason pressure in the tank should build up beyond safe limits.)

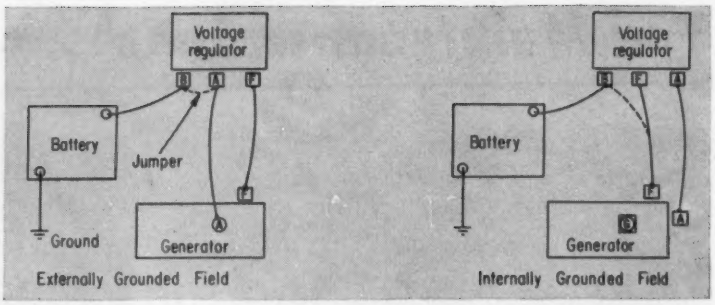
Leaks in the compressor itself are another big reason why tanks fail to build up the correct amount of pressure. To detect leaks, first charge the system and then shut off the engine. If the compressor is leaking, you will be able to hear air escaping. Generally, it is necessary to tear down the compressor to pin-point the leak.

Part of the daily compressor inspection should include checking the system for oil or water leaks, or for noise while the compressor is running. A noisy compressor means that a pulley is loose, that there is excessive carbon on the cylinder head or discharge line, or that bearings or other parts are worn.

continued on next page

How to Check Generators

WHENEVER A GENERATOR is returned to an earthmoving rig after it has been adjusted or repaired, it must be repolarized to conform with the battery that it is to charge. Otherwise, the battery quickly runs down, relay contact points burn up, or the generator itself is seriously damaged, according to the Allis-Chalmers Manufacturing Co.



The two types of generators found on earthmoving equipment are those that are externally grounded and those with internally grounded fields. It is important that the type of generator be determined before attempting to polarize it. The wrong polarization will cause reverse polarity that can severely damage the generator.

To determine whether a generator and regular are externally or internally grounded, remove the "F" wire (see drawing) from the generator terminal. Next, connect a voltmeter from the generator "F" terminal to the ground. Then start the engine and bring it to a fast idle.

If a reading shows up on the voltmeter, the generator is externally grounded; if no reading is obtained, the generator is internally grounded.

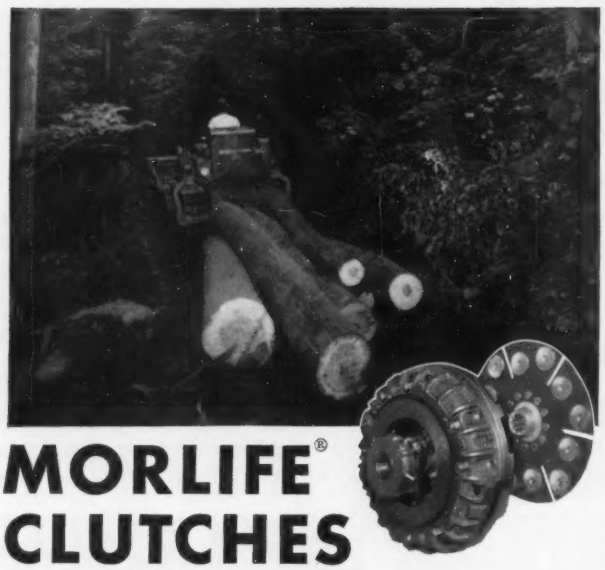
To polarize a generator with an externally grounded field, touch a jumper lead from the battery terminal of the regulator to the generator or armature terminal on the regulator (this terminal is marked "G" or "A," depending on the make of generator).

A word of caution: On high output generators, such as those found on big earthmoving rigs, insulate hot brushes by placing a piece of cardboard between the armature and brushes.

To polarize generators with an internally grounded field (right, above) disconnect the "F" wire from the regulator terminal and momentarily touch the "F" wire to the battery terminal of the regulator.

Do not run or test the generator on an open circuit. To do so probably will destroy the generator and generator regulator. If it is necessary to operate a generator without it being connected to a battery, it should be short circuited. Do this by disconnecting the wire at the "A" terminal of the regulator or cut-out and connecting it to a ground.

ROCKFORD



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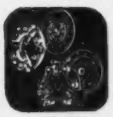
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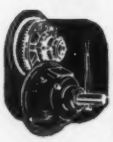
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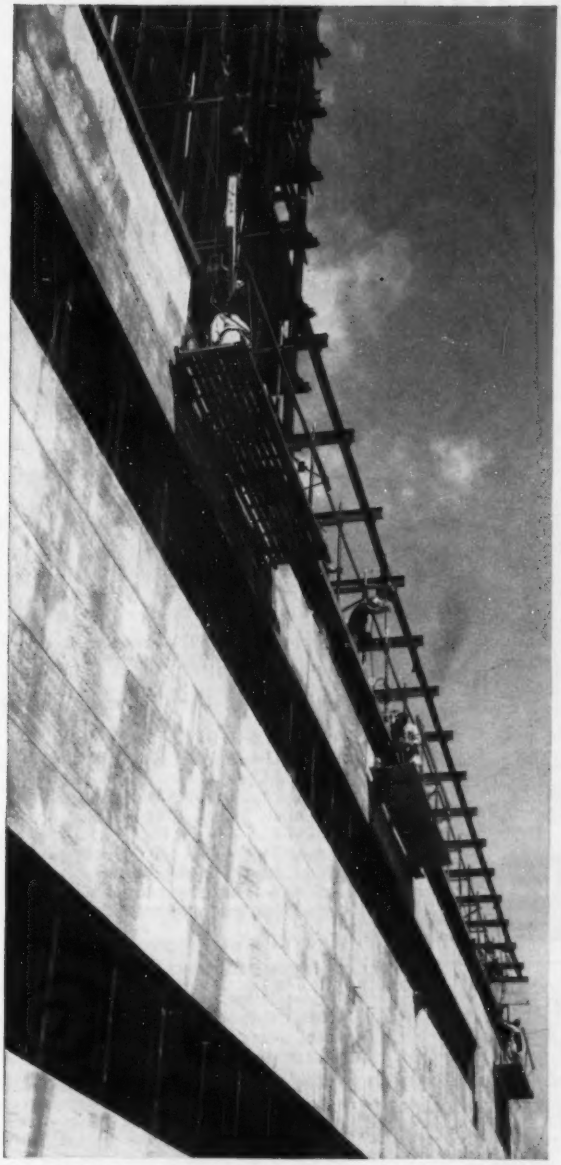
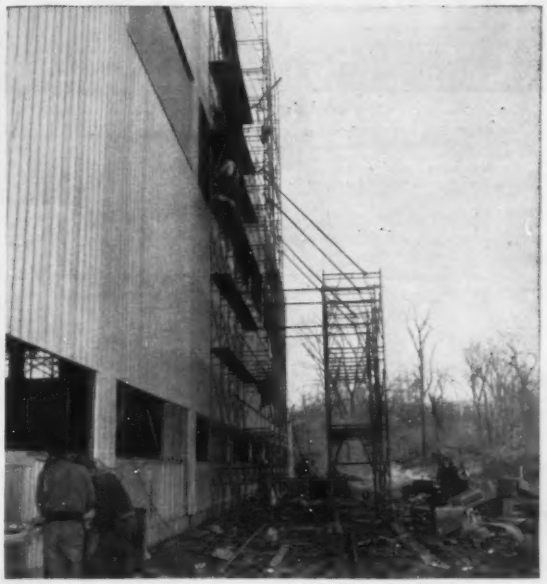
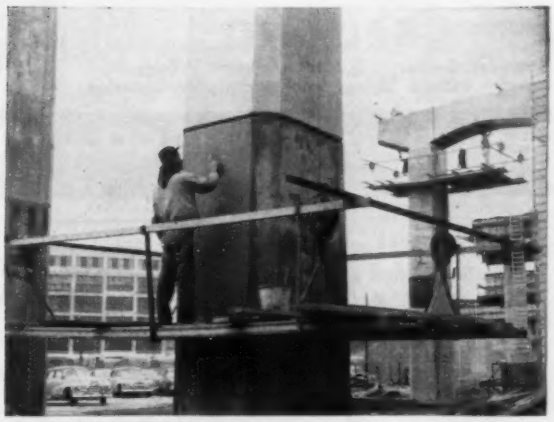


SCAFFOLDS AND PANELS RIDE MONORAIL—A monorail, steel scaffolding and working platforms combine to speed construction of the new National Bank of Commerce, San Antonio, Texas. "Gold Medal"® Suspended Scaffolding I-beams make the monorail. "Gold Medal" Junior Swinging Scaffolds are suspended from it by steel cables attached to two trolleys which ride the I-Beam flanges. An electric winch, riding the monorail between the two scaffolds, hoists and moves pre-cast panels to position. "Tubelox"® Scaffolding provides roof substructure for outrigger I-beam, normally used to support "Gold Medal" Suspended scaffolding Machines. The monorail is attached to it by clamps. Cables tie the substructure to the roof. Henry C. Beck, general contractor.



ROLLING SCAFFOLD SPEEDS SIDING WORK—Hunt Construction Co. uses this rolling scaffold for fast metal siding work on a hanger, for U.S. Steel Co. at the Greater Pittsburgh Airport. Scaffold, 28′ x 47′-high, is quickly made of "Trouble Saver"® Scaffolding. Casters set into the legs for rolling on planking. Note stabilizing unit at right.



HANGING SAFELY TO BRIDGE PIER FINISHING—Concrete bridge piers for the Killingsley Turnpike, Bridgeport Harbor Bridge, Conn., require finishing after pouring for better appearance. To get up and around these piers quickly and safely, A. S. Wikstrom, Inc., contractor, uses "Gold Medal" Junior Swinging Scaffolds. These are suspended by 5/16″ steel wire rope from the pier beams and are overlapped at the corners to fit around columns. Other scaffolds are hung from beam mid-sections for work in that area. Easy adjustment by ratchet-action raising and lowering mechanisms provides fast, safe movement on sturdy, strong, level working platforms as the work progresses. This contractor purchased four and rented 18 others for the job.

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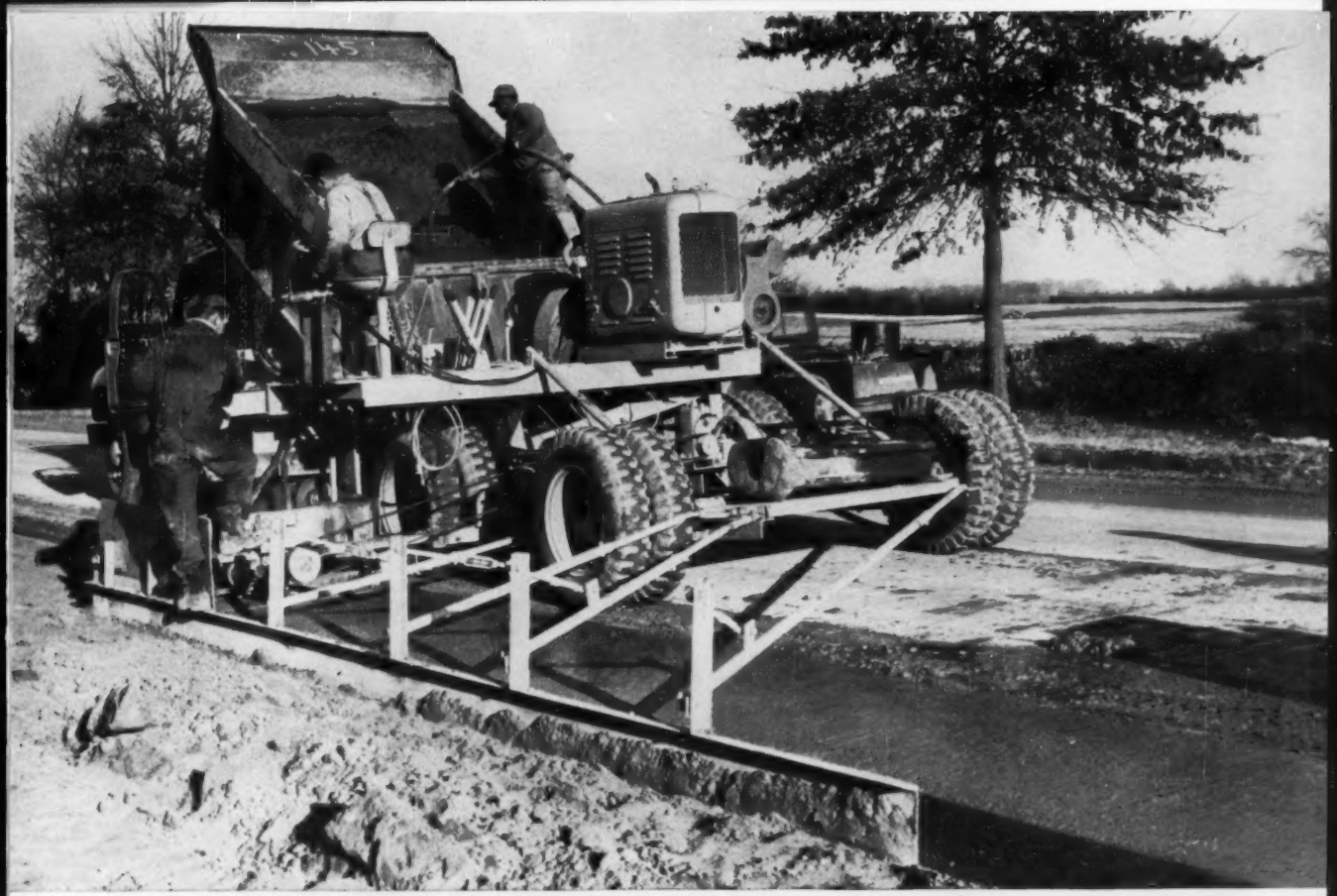

Blaw-Knox slip form Widener at work on DuPont highway outside New Castle, Delaware. The contract, let by Delaware State Highway Department, calls for widening a 6¼ mile stretch of roadway from 20 to 24 feet. Bituminous Mix will be used for resurfacing.

Blaw-Knox slip form Road Widener places 72 yards of low slump concrete per hour on Delaware job

New slip form attachment eliminates setting of forms

"This Blaw-Knox Road Widener made it possible for our 14-man crew to complete this project in seven days. Without it we would have used the conventional method of widening – the setting of forms – which would have greatly increased the man-hour requirements. As it was, we finished the 6¼ mile stretch in seven days," says Webb Blevins, Job Superintendent, Wilson Contracting Company, New Castle, Delaware.

Plenty of power was demonstrated when the Blaw-Knox Road Widener pushed a 16-ton load up a considerable grade with "absolutely no loss of speed," Mr. Blevins adds. "Using the Blaw-Knox Road Widener, we placed 15 feet of 4 feet wide – 8 inch thick concrete every minute."

Engineered Blaw-Knox equipment such as the Road Widener, built for heavy duty performance is helping contractors everywhere to slash costs and build profits on construction jobs. Your Blaw-Knox distributor can give you all the details on the Model 95 Widener. If you would like a technical report on Wilson Contracting's experience, ask your Blaw-Knox distributor for a copy, or write the factory. No obligation of course.

BLAW-KNOX

BLAW-KNOX COMPANY

Construction Equipment Division

38 Charleston Avenue, Mattoon, Illinois

Putting down hole with Bethlehem Hollow at sandstone property of Sullivan Highway Products Corp., Kenoza Lake, N. Y. Drill steel reconditioner: Howells Mining Drill Corp., Plymouth, Pa.

Daily production: **1200 tons of crushed stone**

Here you see Bethlehem Hollow Drill Steel, 1¼ in. round, biting into medium-hard, abrasive sandstone in the quarry of Sullivan Highway Products Corp., Kenoza Lake, N. Y. The 2¼ in. blast holes, on 6-ft centers, average 24 ft in depth. Quarried at the rate of 1200 tons daily, the Specification Crushed Stone is for general highway use.

Bethlehem Hollow Drill Steel is just the ticket for rock drillers because it is rolled from fatigue-resistant steel, and has a uniform hole which is centrally located in the bar. The steel has a wide quenching range, and is easy to heat-treat for the proper balance of toughness and wear-resistance, making possible long-wearing threads and strong shanks.

Bethlehem Hollow is made in Carbon and Ultra-Alloy grades in rounds, hexagons, and quarter octagons. It is furnished in lengths of from 18 ft to 27 ft. Longer lengths can also be supplied to meet special needs. Put it to work on your next rock drilling project.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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Methods Memo . . .

New Line of Machines

R. G. LeTourneau, pioneer manufacturer of heavy duty earthmoving equipment, is planning to bring out a new line of construction machines that he says will make moving dirt cheaper than ever before.

In a talk before the annual Rivers and Harbors Congress in Washington, LeTourneau noted that dirt-moving is "the only thing I know of that's being done as cheaply today as it was 30 years ago." Then he added:

"But when contractors get hold of the new line of earthmoving machinery I'm bringing out, they are going to be able to do these jobs cheaper than ever. One man will be able to bite off a chunk of earth weighing 150 tons in a matter of seconds and wheel it across no-man's land at 20 mph."

The new line of machines will be built around a new "electric-wheel" power system LeTourneau developed for big special purpose machines like the rig in the photo, which removes crashed bombers from runways. Powerful electric motors will be geared directly to the center of each wheel of a machine.

If and When

But LeTourneau will have to cut his way through a tangled legal situation before he can go ahead with plans to market his new line of heavy-duty construction machines.

LeTourneau-Westinghouse Co., the company formed when Westinghouse Air Brake Co. bought LeTourneau's earthmoving equipment business for $31 million five years ago, has filed suit charging him with violating the terms of the sales contract in several respects.

The effect of the charges, if they are upheld in court, would be to prevent the re-entry of LeTourneau into the earthmoving equipment industry for some time—perhaps years.

R. G. LeTourneau has until June 26th to file a reply to the specifications of the suit. What will happen in the end is anybody's guess.

Business Looks Good

There's good news for the construction industry—and the nation—on page 47 of this issue. In brief, the story says that construction has turned the corner; the business outlook is good. Here are the facts:

Contract awards during May scored their fifth successive monthly gain and hit a new all-time high for the month. They were 17% higher than the April total.

The May awards brought the total for the first five months of this year to only 2% below the level of the same 1957 period when business was near a record level. By way of comparison, contract awards at the end of the first two months of this year were 21% below the year-ago level.

It's clear that the construction industry has moved sharply and decisively out of its recession to within a shade of the best levels it ever attained. It's not out of line to expect that the industry will operate during the final six months of this year at near-record levels.

Formal Opening

Vice President Richard Nixon presided at the dedication of the AGC's new national headquarters building in Washington, D.C., on June 10.

As part of the ceremony, a chest containing AGC records and other industry documents was placed in the cornerstone. Then the vice president cut the ribbon officially opening the new building.

AGC's new home is a three-story building with 19,000 sq ft of office space. Approximate cost was $762,000. Joseph F. Nebel Co. of Washington was the general contractor.

Working Agreement

Arthur G. McKee & Co. and Raymond International, Inc., two of the largest American construction firms operating abroad, have agreed to work together on the design, engineering, and construction of new petroleum refineries and chemical plants for overseas clients.

McKee and Raymond each have completed contracts with a value of more than $2 billion in the U.S. and 30-odd foreign countries during the last 50 years.

Officials of the two firms say the agreement specifies that each shall have the right to do business individually when it is not to their mutual interest to work together.

1.

Renowned throughout the building world for his uncanny bids,
Old Andy Schmitt ran out of luck—his business hit the skids.
Pined Andy, "Accidents, slow bonds, down-time—O triple trouble!
Except for them I'd be on top—that threesome burst my bubble."

2.

A man from Travelers sallied in. Said he, "I Will Not Sleep
Until this trio's conquered and you're back atop the heap!
Beset by poky bonds? The Travelers acts with lightning speed.
Our bond men know the local laws—you get just what you need."

3.

"Down-time? Our Builders Risk Insurance and Equipment Floaters
Protect your project and restore those hurt machines and motors.
And Travelers Workmen's Comp and Public Liability
Cuts costs, cuts danger, pays claims *fast*—a wondrous policy."

4.

Tears disappeared from Andy's eyes; he signed the needed papers,
And smiled, "Instead of suicide I feel like cutting capers."
No need for *you* to suffer, either. So, before you're bitten
Call in a trusted Travelers man—be Travelers-underwritten.

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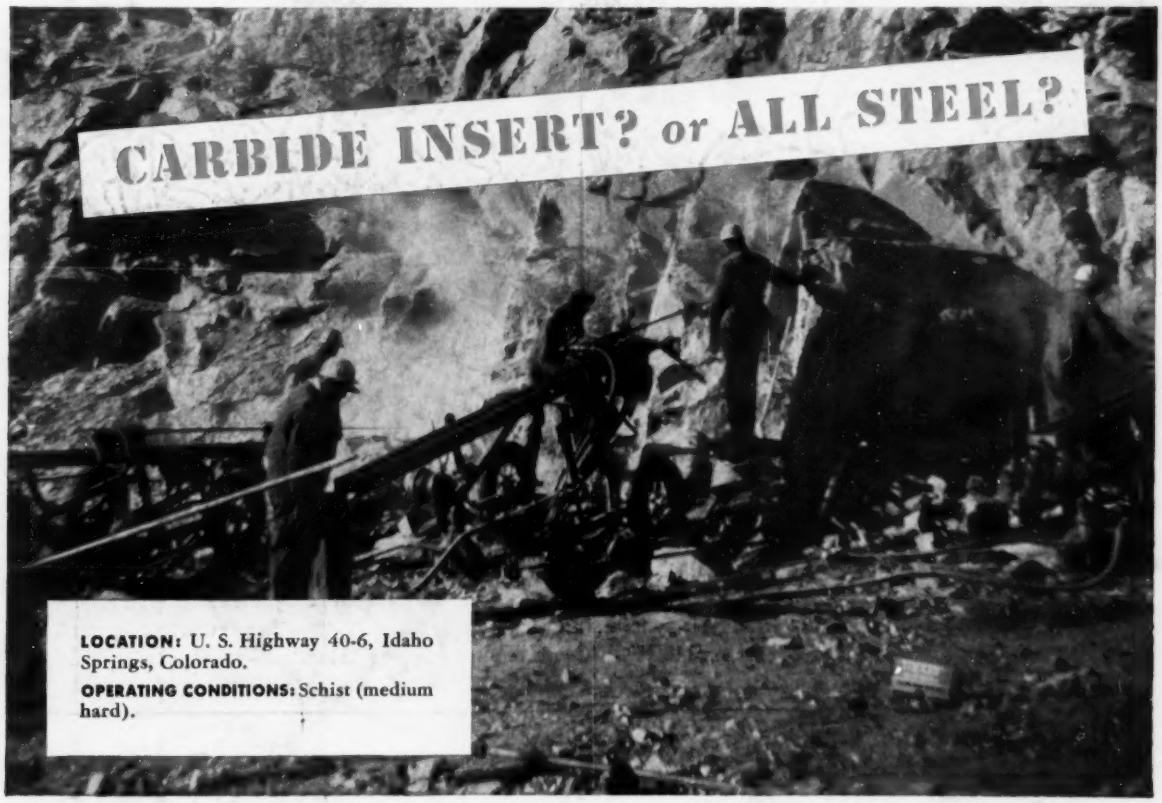


"We get lower cost and uniform results with TIMKEN® carbide insert bits"

. . . Reports Z. H. Lowdermilk, Inc.

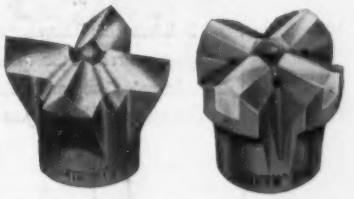
THE first Colorado link in the Transcontinental Superhighway—four lanes on U. S. 40-6 near Idaho Springs, Colo., — required drilling through schist. Z. H. Lowdermilk, Inc., report they get lower bit cost per foot-of-hole and consistent footage drilled with Timken® carbide insert bits.

On jobs like this, you can get maximum economies and best results using Timken carbide insert bits. But carbide insert bits are not always best in every case. In ordinary ground, Timken all steel multi-use bits save you the most. With correct and controlled reconditioning, they give you lowest bit cost per foot-of-hole when you can drill full increments of steel.

Whichever type you use, your drillers will save time. Timken carbide insert and all steel multi-use bits are interchangeable in the same thread series. Drillers can change bits right on the job without changing drill steels.

Both bits are made of Timken electric furnace fine alloy steel. We're the only American removable bit manufacturer that takes the extra quality control step of making its own steel. For further protection, Timken bits have a specially developed shoulder union that guards threads against drilling impacts.

To get the right and most economical bit for your job, call or write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable: "TIMROSCO".



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